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CONTENTS

Lord Portal on the Economic Crisis

DURING the debate in the House of Lords last week on the economic situation, Lord Portal gave some pertinent statistics to refute suggestions which had been made in some quarters that the crisis had been caused by transport difficulties. As Chairman of the Great Western Railway Company he was able to bring both authority and knowledge to bear. He pointed out that during 1946 only 350,000 tons of coal out of a total output of 190,000,000 tons had been lost through pit stoppages caused by railway transport difficulties and lack of wagons. Of these 350,000 tons, no less than 232,000 tons were lost in two weeks in December, when weather conditions were abnormal. Even during the worst period of the coal crisis, the maximum tonnage on the railways on any day had been 962,000 tons, equal to about two days' forwardings from the collieries, whereas the normal quantity in transit during the winter months under favourable conditions is usually about 700,000.

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Productive and Servicing Industries

In view of the great emphasis which at present is being placed on the need for increased production, Lord Portal also performed useful service in drawing attention to the fact that there are two different types of industry—productive and servicing. In the second category, if hours are reduced, costs must rise, as it is necessary to increase the numbers employed without any compensating return, and if in productive industries the hours of work are made less without any reduction of output, the tendency is for those engaged in servicing industries also to ask for shorter hours of work. As an example, Lord Portal cited the signalmen on the railways, who number more than 20,000. Signalmen's work is most intricate, but by its very nature it cannot increase production. He also asked whether this was the right time to reduce the number of trains. This year there would be holidays for about 15,000,000 persons, and if trains were reduced, and if people were going on holiday, how were they to be conveyed? He thought that the Government would have to face a lot more trouble over that matter.

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Road and Rail Track Costs

Sir H. Osborne Mance, in a letter in *The Times*, points out that the release of the "C" licensee from the Transport Bill throws back on the Government the problem of maintaining the rate structure for road and rail. He adds that the correct basis for the division of traffic between road and rail would have been sound if nationalisation were limited to the tracks of railways, roads, and canals, and tolls for the use of the track levied on the traffic carried by the operators. In effect, Sir Osborne Mance comes back to the course we advocated as long ago as August, 1932; this was, that a Roads Authority should derive income from tolls levied, and that the road user would pay for his permanent way and signalling and thus be placed on an equality with the providers of rail transport. Originally, the turnpike roads were maintained by their users, and it was not until after the coming of the railways, and the falling into comparative disuse of the roads, that the cost of the roads became a charge on the local rates; now that the roads once more are main arteries, there is a good case for reverting to payment by user.

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Institute of Transport Annual Dinner

The second post-war annual dinner of the Institute of Transport was held in the Connaught Rooms, London, on Friday last. As was the case last year, ladies were invited, and the general proceedings followed the less formal lines of some similar gatherings which have been a marked feature of post-war functions. Mr. R. Stuart Pilcher, C.B.E., presided, and although, as last year, the speeches were informal, he took the opportunity to review briefly the activities of the Institute and to make an appeal for further funds for the new premises. Sir Frederick Handley Page, C.B.E., the immediate Past-President, said that the appeal for funds had succeeded in raising £57,000, and they had been successful in securing premises. They still required, however, £43,000 more as their

first target, and if the Institute was to develop in the way they all wished it to do, they would probably raise this target later. They had now made favourable progress, and not only did they want a good and worthy home for the Institute in London, but they were very desirous of seeing that the provincial and overseas branches should be able to develop along independent lines without too much direction from central authority.

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Locomotive Repairs at Scotswood

The need for rationalisation which was imposed on the British locomotive industry by the economic events of the early 1930s resulted in the Scotswood Works being taken over by the Admiralty. This step avoided any unemployment being caused. In March, 1939, the works were released to Vickers-Armstrong, and they played their full part in the production of war materials. It has now been found possible to make available at the Scotswood Works facilities for the repair of locomotives, for which the present need is pressing, and the Locomotive Manufacturers' Association has agreed to a temporary waiver of covenants to enable urgently required repair work for the home railway companies to be carried out at the works. It is estimated that some 700 2-8-0 "austerity" locomotives will be repaired at Scotswood, and arrangements have been made at the same time to ensure a satisfactory rate of repairs.

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Southern Railway and Southampton Docks

On March 18, Mr. R. P. Biddle, Docks & Marine Manager, Southern Railway, read a paper on docks operation, with special reference to Southampton Docks, to the Railway Students' Association; the meeting was presided over by Mr. C. E. R. Sherrington, Secretary, Railway Research Service. In his paper, which covered the subject very fully, Mr. Biddle showed, first, how the provision of port facilities involves many interests, and how the nature of the administration has a considerable influence on the service a port provides and how it affects the whole question of docks operation. At Southampton, there is a separate authority, the Southampton Harbour Board, in which is vested the control of the port and harbour as distinct from the docks, which are owned and managed by the Southern Railway; and the figures given by Mr. Biddle showing the expansion of the docks under railway control are impressive. The importance of adequate rail and road access to all parts of the docks has received special attention. A well-planned system of railways and marshalling sidings, about 70 miles in length, connects all berths, sheds, and warehouses to the Southern Railway main line, and a special traffic department in the docks is responsible for the whole of the marshalling and shunting operations, and for providing the necessary passenger and freight rolling stock for all train services in the docks.

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Metal Sleepers Harbouring Poisonous Snakes

A recent conversation with an engineer, who had been engaged in railway maintenance in Kenya, revealed an unexpected danger to the permanent way staff arising from the use of metal sleepers of the channel and pot types in tropical countries. If the ballast consists of light, sandy material, easily washed away by heavy rains, the cavities formed under the sleepers provide lurking places for the poisonous snakes which infest these areas. It is unusual for the snakes to attack human beings without provocation, but, when disturbed by the work of the permanent way gangs, they become highly dangerous, and cases of snake bite, frequently attended by fatal results, are by no means uncommon. The danger is the greater in comparatively little-used sidings, which do not call for constant attention. It is a common practice with maintenance gangs, before starting work in a locality in which snakes abound, to send one or two men along the track in advance of the main party, to strike the sleepers with hammers. This disturbs the snakes, and usually has the desired effect of making them leave their hiding places, when those that do not manage to escape can be dealt with before they are able to inflict serious injury on the men. The danger is thus reduced to a minimum, but it is of the utmost importance, at all times, to maintain a constant watch for this insidious enemy lurking unseen in unexpected places.

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Preparing the Track for U.S.A. High Speeds

Preparation of many main lines in the United States for faster operation than ever previously is proceeding with considerable energy. On its "Golden State" route from Chicago to California, for example, the Chicago, Rock Island & Pacific is in course of relocating 80 miles of line, in five separate projects, to reduce ruling gradients from 1 in 62½ to 1 in 200, and to ease maximum curvature from 12½ to 60 ch. radius. On this work a total of $12,000,000 is being spent. Between 1943 and 1946 inclusive, the Atlantic Coast Line has laid 839 miles of its principal main lines with new 131 lb. per yd. f.b. rail, with accessories of the latest type, and nearly 6,000,000 new sleepers, and at the same time has carried out an extensive programme of embankment widening, ditching, strengthening and renewal of bridges, elimination of wooden trestles, and modernisation of signalling and interlocking plants, to prepare for higher speeds. The Nashville, Chattanooga & St. Louis has awarded contracts for the reduction of maximum curvature over the whole of its main line between Memphis and Atlanta to a minimum radius of 40 ch. Over the principal United States routes, maximum speeds are envisaged up to 100 m.p.h.; it is considered that no less weight of rail than 112 lb. per yd. is adequate for this purpose, and that 131 lb. rail or over is preferable. But for the shortage of steel, considerable further progress would have been made in relaying than has been possible until now.

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G.W.R. Locomotive Coal Transport

When Mr. H. H. Phillips, Assistant to the Superintendent of the Line, Cardiff, addressed the Great Western Railway (London) Lecture & Debating Society recently on "Coal as a Transport Problem," he gave some details of the scheme evolved by the G.W.R. to distribute coal for locomotive purposes to its various depots. Nearly two million tons of coal is used by G.W.R. locomotives each year, and most of it is drawn from pits in the eastern section of the South Wales coalfield. About 57 per cent. goes to depots in England. The greater part of it passes in complete train loads. The co-operation of the South Wales colliery companies ensures that coal is loaded to particular depots on specified days each week, and the Chief Mechanical Engineer's Department ensures that the fuel requirements of a depot, or group of depots on a particular route, can be supplied from one pit or from adjacent collieries. This has facilitated concentration of loaded wagons so that block train loads can be formed. Normally 64 per cent. of the tonnage passes in full train loads, and 14 per cent. in partial block trains—that is to say, no less than 78 per cent. of the total supplies for G.W.R. engine sheds in England is covered by this arrangement.

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Diesel Electrics for L.M.S.R. Main-Line Services

Of the four British main-line companies, the L.M.S.R. has had the greatest experience with diesel-electric traction, for it has made extensive use of diesel-electric shunting locomotives. In November last, the Southern Railway announced its intention of using diesel-electric traction for shunting work —it already possesses units for this purpose—and on feeder services and local goods trains in its electrified area. Last weekend, the L.M.S.R. gave some details of its plans for building diesel-electric locomotives for experimental use in main-line passenger and freight services. Details of this development are given elsewhere in this issue. Three main types of locomotives are envisaged by the L.M.S.R. The first, for express passenger services, will consist of 3,200 h.p. in two 1,600-h.p. units coupled; the second will be the independent use of single 1,600-h.p. locomotives for suburban and semi-fast passenger trains and medium-weight main-line freight services; the third is an 800-h.p. locomotive for branch and cross-country passenger and freight services. It is also extending considerably the use of its standard shunting type 350-h.p. unit, of which it has 40 in service and 10 under construction. It plans to build a hundred more in the next six years.

"The Truth About Britain's Transport"

RECENTLY, *Reynolds News* has published a 25-page pamphlet by Mr. Henry Owen, entitled "The Truth About Britain's Transport,"* which evidently has been prepared to support the Government's proposals for the nationalisation of inland transport. In a foreword, the author acknowledges the assistance he has received from the London Research Department in preparing the pamphlet, but it is remarkable how many incorrect and misleading statements have been incorporated in a document which purports to expound the truth. The arguments are merely a repetition of inaccurate statements which have been refuted time and again: they are repeated, presumably on the assumption that no matter how erroneous a statement may be, constant reiteration will lead the public to believe it.

The methods adopted to support the arguments are curious, to say the least. Thus, on the first page, under the heading of "Who owns the railways," what purports to be an extract from the report of the Royal Commission on Transport, 1930, is quoted to the effect that, because the railways have insisted on retaining their heavy burden of inflated capital, it has been impossible for them to raise new money for improvements. Unfortunately for the author, no such statement appears in the report. On the other hand, although in the same chapter it is claimed that the total capital cost per route-mile of the British railways is substantially in excess of German and U.S.A. railways, the author carefully avoids reference to the fact that the Royal Commission dealt fully with this point and indicated the principal reasons for the higher cost of railway construction in this country. In any case, the figure quoted for the British railways is very far from accurate.

The railway estimate that there are over one million persons interested in railway stockholdings is described as a gross Tory exaggeration without any supporting evidence, and, as is usual in such pamphlets, railway directors receive their meed of criticism. Railway efficiency is then criticised as to quality and cost, but again the author fails to point out that railways are the only undertakings in the country which, since 1923, by law have had to prove before the Railway Rates Tribunal annually in open court that their operations during the previous twelve months have been conducted with economy and efficiency. They did this annually until the outbreak of war, and no evidence has ever been given to the contrary. It is idle, therefore, to make sweeping assertions which the writers never have been prepared to attempt to prove when they had the opportunity.

The pamphlet quotes the Liverpool Street service as proof that the railways have failed to keep pace with modern technical developments—a ridiculous assertion, as the war alone prevented the completion of the electrification scheme then in hand. Again quoting the Royal Commission Report, the author criticises train speeds, giving incorrect figures and making no reference to the fact that very much heavier loads now have to be hauled. The perennial criticism as to the small size of British railway wagons is then repeated, without regard to the fact that they are designed to meet the requirements of British trade and industry; and wrong figures are given of the railway companies' stocks of containers.

The Weir Committee is quoted as having recommended the general electrification of British railways, which it certainly did not, and a comparison is made of railway charges in Great Britain and abroad which is entirely misleading because of the tremendous difference in the average length of haul in the respective countries. The Railways Act, 1921, is then quoted as having established a virtual monopoly and guaranteeing a net revenue plus 20 per cent. of all the economies which resulted from the amalgamations—all of which statements are incorrect. The charge is made also that the net revenue for 1913, on which the standard revenue was calculated, was unduly inflated because fares were increased in that year to meet anticipated wage claims. As if any tribunal, or Minister, would authorise an increase in such circumstances! The truth is that freight rates, not fares, were advanced to cover the cost of a wage advance made previously.

The references to road passenger transport and canals, and the comments as to air services, steamship services, and docks are completely misleading. Perhaps the gem of the pamphlet is the statement on page 10 that "all forms of transport are in process of being steadily subordinated to the overwhelming financial power of the railway companies. Canals, buses, aircraft, ships, and docks are swept into their power, to be mutilated or operated at the railways' whim." If this, indeed, be the truth about transport which the writer has discovered with the assistance of the Labour Research Department, we cannot but marvel at his innocence.

* "The Truth About Britain's Transport," by Henry Owen. Published by *Reynolds News*, Wicklow Street, London, W.C.1. Price 6d.

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A Distinguished American Railway Economist

ON January 31 the Association of American Railroads announced that Dr. Julius H. Parmelee, Director of the Bureau of Railway Economics since 1920, had been elected Vice-President of the Association, in recognition of his long and excellent service. Dr. Parmelee graduated B.A. at Yale University in 1904 and spent three years as instructor there. He then became a special examiner on the staff of the Interstate Commerce Commission. After receiving the Ph.D. degree from Yale, he began his work with the Bureau of Railway Economics as a statistician in 1911. Quickly, Dr. Parmelee's ability to handle railway statistics and estimates of future prospects made him a leading witness in proceedings about rates and charges, wages, and financial adjustments.

In our issue of December 20, 1946, we described Dr. Parmelee's method of presenting to the Interstate Commerce Commission the successful appeal of the railways for an increase in freight rates. We have drawn attention regularly to his annual survey of railway operations in the U.S.A., which is a model of concise interpretation of up-to-date statistics. Dr. Parmelee enjoys a unique status as a railway economist possessing detailed knowledge of transport working. His new appointment has given much satisfaction to American railway officers, and to his friends in this country.

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The Case for Higher Rates in Canada

IN February, the Canadian Board of Transport Commissioners began hearings of the application for a 30 per cent. increase in freight rates from the 23 member companies of the Railway Association of Canada. An outline of the application and of various factors mentioned in its support was given in our October 25, 1946, issue. On February 11, Mr. R. C. Vaughan, Chairman & President of the Canadian National Railways, presented the case for his system to the commissioners. He showed that a decline in C.N.R. revenues began in the last quarter of 1929, and although a slight recovery began in 1933, the climb out of the abyss was slow and laborious.

When the war began, they had behind them four years of deep depression, followed by several years of slow recovery. Services had been curtailed; maintenance work, except what was immediately necessary for safe and efficient operation, had been deferred; and staffs had been thinned out and wages reduced. When these facts were taken into consideration, Mr. Vaughan thought it spoke well for the railways that they were able to assume the heavy task of the war and carry it through with honour to themselves and to Canada.

During the years 1940-45 inclusive, the greatest differences in the operations of the C.N.R. system from the preceding years were in the volume of traffic carried, the character of the traffic, and the kind of service performed. While agricultural, mineral, and industrial production reached great heights and the volume of traffic was unprecedented, higher rated traffic, such as manufactured commodities and materials of war, made up a very much greater part of the total traffic than normally was the case. As a result of various factors, the railways were operating under very favourable circumstances from a financial point of view; railway operating revenues were greatly increased, and maximum loading and slower schedules resulted in a more economical transportation of the traffic. Canadian railway operating ratios, which were in the nineties before the war—100 in 1931, 97·13 in 1938—were reduced to 82·77 in 1940, 79·23 in 1941, 77·30 in 1942, and 73·73 in 1943 (passenger traffic included). However, the increased wages and cost of materials had been reflected in each year's operation since 1943, and the surpluses had been progressively smaller. Wage adjustments added $622,000 to

C.N.R. Canadian line expenses in 1939. In 1941, the cost of living bonus added more than $6,000,000; in 1942, $15,549,000; in 1943, $18,918,000. C.N.R. lines in the United States lines were not included in these figures. Increases authorised in 1944, retroactive to various dates in 1943, added approximately $14,000,000 to the annual payroll. As compared with 1939, on all lines the C.N.R. was paying $47,823,000 more in wages in 1944. From the beginning of the war to the end of 1945, wage increases had cost $146,261,000. Increases authorised in August, 1946, retroactive to June, further increased the C.N.R. Canadian payroll by approximately $23,631,000 a year.

In 1947, the average wage rate of Canadian employees would be 41 per cent. higher than in 1939. The average purchase price of materials and supplies in Canada had risen from $1 per unit in 1939, to $1·42 in 1947. This year, wages and materials would cost the C.N.R. Canadian lines over $90,000,000 more than they would have had to pay at the 1939 wage rate and the 1939 cost of materials. Although, during the war, they were able to show surpluses in the face of these increases, this was possible only because of the war-time volume of traffic and its character.

Various suggestions had been made recently that an increase in traffic was the answer to the present predicament of the railways. Mr. Vaughan pointed out that if, during the years 1942-43, in which Canadian National Railways had surpluses of $25,000,000 and $35,600,000, they had been required to pay 1946 wage rates and to pay 1946 prices for materials, they would have had, in 1942, a deficit of $32,500,000 rather than a surplus of $25,000,000; and, in 1943, a deficit of $19,600,000, rather than a surplus of $35,600,000. A return, even to the volume and character of the traffic enjoyed during the war years, would not be sufficient. In conclusion, Mr. Vaughan said that, as an instrument of national defence, the railways were the fourth Service arm of Canada. There were no means, except railways, by which sufficiently large numbers of men and sufficiently large quantities of materials could be transported over long land distances with the speed that modern war demanded. Nor could their importance in the peacetime economy of the nation be overestimated. It was essential that they be healthy and prosperous.

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L.N.E.R. Locomotive Development

UNDER the title "The Development of L.N.E.R. Locomotive Design, 1923-1941," Mr. B. Spencer, M.I.Loco.E., presented a paper of unusual interest before a large gathering of the Institution of Locomotive Engineers in London on March 19. Of Mr. Spencer's qualifications for dealing with this subject there could be no question, for he joined the service of the old Great Northern Railway in the early days of the Gresley régime, and so grew up with the developments which he records so ably. The Institution has been fortunate in securing this paper, which makes a worthy companion to Mr. E. S. Cox's classical work on the development of locomotive design on the L.M.S.R.

Mr. Spencer succeeded in a difficult task, namely, in providing new information in a field already pretty thoroughly documented; he had the advantage of access to certain inside information and so was able to work into his well-balanced story an account of several most interesting Gresley designs which, for different reasons, never got beyond the drawing-board stage. Although these designs had been dealt with in a lecture by Mr. Arthur Cook before the Stephenson Locomotive Society in August, 1944, neither drawings nor descriptions had been placed on permanent record.

The field covered by the paper is so great that it left little opportunity for the author to come down to details, except in one or two instances, as when he describes the characteristics of the Gresley valve gear or recounts the efforts made to improve the exhaust arrangements of the "P2" class 2-8-2s. Concentration on broad principles perhaps was rather a characteristic of Gresley himself, and that outlook tended to communicate itself to some of his design staff, with whom, however, it could be a snare as well as a source of strength. For undoubtedly there was at one time a tendency to relegate certain of the detail work of design to members of the team who were not conspicuous for being in touch with realities. Thus, the Gresley engine of the early years of the grouping, although undoubtedly a superb machine, efficient and well proportioned, could cause a quite unnecessary amount of exasperation to the Running Department in certain of its details. Anyone who has known just how awkward the renewal of a leading coupling rod bush can be on a Gresley 2-6-0, will understand what is meant. Snifting valves, steam fountains, and regular stuffing boxes were other examples of this trait.

Unquestionably the greatest single step forward ever taken in the development of the Gresley engine was the adoption of long-lap piston valves after the celebrated exchange of locomotives with the G.W.R. in 1925. From that date the Pacifics became humanly possible to fire without undue exhaustion to the fireman. But it was still some years before the next great step was taken. The accusation was made that the engines were "over-cylindered," but this hardly could have been the case with a boiler of so great a steaming capacity; the real trouble was the obstinate adherence to 8-in. piston valves for distributing steam to cylinders as large as 20 in. by 26 in. The performance of the Pacifics was greatly improved when a change was made to 9-in. valves; the reduction of the cylinder diameter at the same time was the logical result of an increased boiler pressure, and was in no way an admission of the engines having been "over-cylindered." Incidentally, the Great Eastern Railway had adopted 10-in. piston valves with conspicuous success for 20 in. × 28 in. cylinders many years before the first Gresley Pacific was built.

Of the many designs which Gresley initiated, but never carried into effect, the proposed 4-8-2 tender engine is the most interesting—a sort of "super-Cock o' the North" with three 21 in. by 26 in. cylinders driving 6-ft. 8-in. wheels, 80 tons adhesive weight, and a boiler pitched with its centre line 9 ft. 4½ in. above rail level. The rigid wheelbase was to be 21 ft., equally divided. It appears that this design came nearer to being built than any of the others illustrated in Mr. Spencer's paper, and is a significant example of the ideas current in Gresley's mind in his endeavours to implement his "big engine" policy.

One is left with the impression that Gresley's engines were extremely well suited to the needs of their time—a time of great technical development and of exciting increases in speed; they were beautifully constructed, and demanded a like standard in maintenance; were sensitive to the handling they received and responded well to a skilled driver; and had an almost unlimited capacity for sustained hauling of heavy trains at high speeds. Gresley's designs were always well abreast of their times, and that is as true of his earliest creations (having regard to the date of their appearance) as it is of the last examples of his genius.

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New Zealand Government Railways

IN the year ended March 31, 1946, the New Zealand Government Railways established a new record in gross receipts with a total of £15,444,847, representing an increase of £119,541 over the previous record of 1943-44, and £985,097, or 6·81 per cent., over the gross receipts for 1944-45. Passenger and goods traffic both contributed higher receipts, for although short-distance passenger traffic decreased, this was more than counterbalanced by an increase in long-distance journeys and travel on military leave passes. During the year the receipts from military passenger traffic constituted 34·59 per cent. of the total railway passenger revenue. Goods operations produced new records both in revenue and tonnage, receipts being £8,515,673, an increase of £254,586, and tonnage handled rising from 8,177,551 to 8,388,191. Results are as follow:—

Year ended March 31	Earnings	Working expenses	Net earnings	Net earnings per train-mile
	£	£	£	d.
1942 ...	11,938,338	10,056,034	1,882,304	25·43
1943 ...	14,128,993	11,302,413	2,826,580	37·98
1944 ...	15,325,306	12,757,336	2,567,970	32·87
1945 ...	14,459,750	13,260,277	1,199,473	14·09
1946 ...	15,444,847	14,384,844	1,060,003	9·90

Expenditure for the year was £1,124,567 higher at £14,384,844. Major contributions to this increase occurred in the wages bill; in the cost of stores and materials; and in the increase of £241,989 in contributions to the track renewals fund, and the provision of £246,000 for deferred maintenance. Net revenue was £1,060,003, a decrease of £139,470, or 11·63 per cent., compared with the preceding year. The operating ratio rose from 93·96 per cent. to 95·77 per cent.

The report comments on the satisfactory nature of these performances considering the difficulties beyond its control with which the department has had to contend. Coal supplies, for example, continued to be restricted, and passenger train service reductions had to be maintained. The consumption of coal rose from 576,926 tons to 610,086 tons, although over 80 per cent. of the increase was in soft coal. Investigations into the use of oil fuel have led to the conclusion that in the present circumstances the cost per locomotive-mile of running an oil-fired engine would be in excess of that for coal, but tests are to be carried out, nevertheless, with two engines which have been converted for oil firing. It has been difficult to keep pace with increasing demands for goods transport on account of the interruption of wagon-building programmes during the war years. Only 130 open-type "La" wagons were built in 1945, as compared with an average of 700 a year in normal times. Accordingly, orders for 3,000 wagons of this type have been placed with British firms. The complete order should be received by August.

The administration intends to proceed with proposals with co-ordinated road and rail services which were held up by the war. An experimental service between Wellington and Palmerston North proved successful. Among the advantages obtained were a reduction of transhipment work at Palmerston North, the release of numerous wagons from the handling of small consignments and their consequent availability for bulk loading, and the extension to small centres of the fast transport provided by the Auckland-Wellington express goods trains. The mileage of lines open for traffic on March 31, 1946, showed an increase of 23 m. 62 ch.; the additions were the link between Hundalee and Kaikoura on the South Island Main Trunk Railway (Christchurch—Picton) opened on December 15, 1945, and the opening of a 1-mile 36-ch. line from Waterloo to Naena on January 7, 1946, giving a total mileage open for traffic of 3,527 miles 63 ch.

Reviewing the prospects for the current year, the report forecasts an inevitable decrease in railway revenue with the return of normal conditions, while expenditure is expected to increase mainly on account of the granting of additional concessions to employees. The net result is that revenue is estimated to do no more than meet expenditure. Consideration has been given to the question whether or not rates and fares should be increased, but the conclusion has been reached, considering the effect on the national economy of such increases, that the interest bill at the present time should be met from the consolidated fund.

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The Australian Standard Garratt Locomotive

As a result of conditions arising from the outbreak of war in 1939, and particularly with the entry of Japan into the conflict, the railway system in Australia was taxed to its utmost. There was an acute shortage of locomotive power throughout the Commonwealth, a position complicated by the different rail gauges in the various States. In 1942 the Commonwealth Land Transport Board, formed in 1939 to organise land transport and set up under national security regulations, appointed the Commissioner of Railways in Western Australia to go into the carrying capacity of all the 3 ft. 6 in.-gauge lines, and to consider the acquisition or construction of locomotives for use on these gauges, more particularly in Queensland and Western Australia where the position was especially acute, as these were the two States where the impact of the war with Japan was most likely to be felt.

The problem to be solved was by no means easy in part because of the restrictions imposed on axle loadings by the bridges and other track conditions and to certain special regulations in several of the States governing the maximum distance between coupled wheels, with limitations on the rigid wheelbase due to curvature. Other points to be kept in mind were the number of axles it was desirable to couple, as dictated by engineering experience, and the relation between the tractive force and the weight available for adhesion. The question of total weight was also of paramount importance, and in Queensland the maximum rigid wheelbase allowed is given as being 12 ft. 6 in., and the admissible axle loading is stated to be 8½ tons.

After full consideration, the Commissioner of Railways recommended the building of three locomotive types on the Garratt system of articulation—a heavy, a medium, and a light type, but ultimately the Commonwealth Land Transport Board decided on one type only—the lightest of the three, to be designed for an axle loading of 8½ tons to suit conditions in Queensland. The tractive force was to be 34,000 lb., and it was intended to build the engines so that they would suit all 3 ft. 6 in.-gauge lines. In other words, it was to be a standard 3 ft. 6 in.-gauge Garratt-type locomotive. In the circumstances, and especially because of the urgent need for additional motive power, the project was no doubt ambitious.

Before deciding to build these engines in Australia, the recognised British builders of this type of articulated locomotive were approached as to the cost of supplying the locomotive and, later, working drawings to enable construction to be undertaken in Australia. Both offers were rejected. Eventually a design was prepared in Australia and the work distributed throughout the country. The design as a whole would seem to have been based on a general outline drawing prepared some years ago by the builders of this type of engine. The total weight of the engine was to be similar to that shown by this drawing, namely, about 119 tons. However, additions to the boiler and tank and bunker capacity made it necessary to scale down the weight of other parts of the engine, notably the framing, if the 119 tons was not to be exceeded, and another feature of moment was the extension of the coupled wheelbase to 13 ft. 6 in. The engines, as built, have the 4-8-2 + 2-8-4 wheel arrangement with 4-ft. driving wheels, spaced 4 ft. 6 in. between centres.

The actual rigid wheelbase is 9 ft., because the leading wheels of each unit those next the four-wheel bogie—are without flanges. The main order for construction was duly placed in Australia with a recognised firm of builders, but, due to urgency, a considerable number of sub-contractors were involved, each supplying component parts with the idea of expediting assembly and the completion of the engines. Soon after the first locomotives went into traffic, complaints began to be made by the engine-drivers and firemen, through the Western Australian Locomotive Engine Drivers', Firemen's & Cleaners' Union, particularly on matters relating to the safe working and economy and general unsatisfactory performance. These appear to have been sufficiently serious to cause the appointment of a Royal Commission to examine matters in a dispute between the workers' Union and the Commissioner of Railways.

The report* of the Royal Commissioner, the Hon. Albert Asher Wolff, Puisne Judge of the Supreme Court of Western Australia appointed by Sir James Mitchell, K.C.M.G., Lieutenant Governor in and over the State of Western Australia and its Dependencies, has now been published. To judge from the findings, which embrace numerous recommendations involving modifications to the engine of greater or less importance, the only opinion that can be formed is that the decision to build these locomotives without the advantage of designs approved by the established makers of this type of engine, based on long experience, was unfortunate.

Several features of the engines, as built, attract attention, one, of some moment, being the fitting of flangeless tyres to the leading wheels of each unit. Although this is an arrangement which has been adopted, it is, presumably, essential, particularly in an articulated engine, that front and back control and the pivot arrangement be in accordance with long experience with this type of engine. The absence of this experience no doubt accounted for a design which had the tendency to derail.

Many other modifications are recommended for consideration. The impression which remains after reading the report is that the events leading to the setting up of the Commission provide just another instance of a number of engines being built without adequate previous experience to act as a guide. We can call to mind other instances of a similar kind.

Locomotive designing no doubt is to some extent a science, but it is also an art, and perhaps more so in the case of a special articulated type, experience in the building of which has contributed in no small measure to the success that has attended the use of these engines in every form of traffic.

* Report of the Royal Commission appointed to inquire into Australian Standard Garratt Locomotive. The Government Printer, Perth, Western Australia

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Continuous Brakes for Coal Wagons

Mallow, Co. Cork,
Eire. March 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I make so bold as to state that had Britain's rail wagons, especially her coal trucks, been fitted with continuous braking and close couplings, preferably the automatic type (thereby enabling passenger train schedules to be obtained by goods trains), then the recent fuel crisis, with its dislocation of traffic, would have been alleviated greatly.

Further, the cartoon at the bottom of page 236 of *The Railway Gazette* of March 14 would not exist.

Yours faithfully,
A. L. RIDGWAY

Moscow to Petersburg: A 400-mile Snow Block

Coll-Earn, Auchterarder,
Scotland. March 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Yes, "Petersburg." We must have canonised Peter the Great in a beautiful jest, as he was far from a saint when he sojourned in London to learn shipbuilding. Our late fate of a night and a day to get from Edinburgh to London brings to mind my travel over the like distance from Moscow to Petersburg 50 years agone.

There was a complete snow block for the whole 400 miles, since it had snowed for weeks to a total depth of 9 ft.—not drifts, as all is dead flat. My train broke the blockade because we had an Imperial Grand Duke and huge piles of held-up Imperial Mails on board. We made the passage thanks to tens of thousands of peasants set to attack one track. They were close together—a matter of yards—on the whole 400 miles, and digging away with out-size wooden spades.

We halted alongside a well-embedded goods train, and my attendant asked the driver how long he had been stuck, and was told: "For three days." "And how long will it be before your rescue?" With true Russian piety and fatalism came: "The Lord God alone knoweth."

The line is most wearisome, being not only quite flat, but dead straight. When railways came into fashion the Tsar ordered one to be built between his old and new capitals, and set up an Imperial Commission to fix the route. It split into two, some were for *via* York and Berwick-on-Tweed, others for Crewe and Carlisle—my father remembered Mr. Gladstone as President of the Board of Trade talking in the House of Commons as to what should be *the one* route between Scotland and England. The Tsar paraded them to argue it out. At last, tired of talk, he took his sword as a ruler and drew a straight line from Moscow to Petersburg, saying, "That is the line." And it was. And so it touches few villages and no large towns. I was glad when the 12 weary hours were overpast, being nigh blind by reason of a brilliant sun on endless dead flat snow.

Yours faithfully,
NORMAN D. MACDONALD

Are Our Railways a Disgrace?

Canadian National Railways,
17-19, Cockspur Street,
London, S.W.1. March 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of March 14, on page 234, you publish a letter from Mr. R. B. Stoker under the heading: "Are our Railways a Disgrace?"

Naturally, I am not at all desirous of attempting to make comparisons as between operations of railways in Great Britain and Canada, as obviously the conditions of operation differ greatly, and I have little doubt but that the managements of the railways in both countries are constantly studying the requirements of different services, and adjusting the services to suit the particular requirements of the lines involved. It must be borne in mind that in Great Britain there is a comparatively high traffic density, whereas in Canada, with its vaster distances, traffic density on many of the lines is very low.

In his letter, Mr. Stoker cites various schedules, but he does not always select the fastest schedules, nor the direct routes, and, therefore, the following may be of interest:—

(1) Mr. Stoker refers to the line from The Pas to Churchill, and refers to a train leaving each Friday at 9.45 a.m., arriving Churchill Sunday 3.30 p.m., returning from Churchill 8 a.m. Monday, arriving The Pas on Wednesday at 2 p.m.

Table No. 243 of the Canadian National Railways timetable indicates that there is a train leaving The Pas at 2.30 p.m. Tuesday, which arrives Churchill 2.15 p.m. Wednesday, returning from Churchill 7.15 a.m. Thursday, arriving The Pas 9.30 a.m. Friday. These trains have sleepers, also buffet parlour cars, and are additional to the services mentioned by Mr. Stoker. I am sure anyone having knowledge of the conditions and traffic density on this line, would agree that the services provided are adequate.

(2) Mr. Stoker refers to the fact that there is a daily main-line train from Winnipeg to Edmonton, which does the run in 47 hours, or an average of 18.5 miles per hour.

This train does not operate over the main line, but instead takes a route *via* Regina and North Battleford. Actually, there are two main-line trains operating daily between Winnipeg and Edmonton, one of which leaves Winnipeg at 10.15 a.m. Monday, arriving Edmonton 6.40 a.m. Tuesday, and allowing for the difference of one hour in time, the actual running time is 21 hours 25 minutes.

(3) Mr. Stoker also refers to being able to leave Winnipeg *en route* to Yorkton, and get into Russell, say, Friday night at 8.20, leaving the next morning at 9 a.m. and getting into Yorkton at 12.50 p.m.

There is a daily train leaving Winnipeg at 10.15 a.m., *via* Melville, with connection from Melville leaving 5.45 p.m., Tuesday, Thursday, and Saturday, arriving Yorkton 6.35 p.m.

(4) Reference is also made to such places as Buctouche, Shediac, or Musquodoboit, with train services once or twice a week. Actually, Buctouche and Shediac are located on a branch line out of Moncton, and it may be pointed out that on the main line between Halifax and Moncton there are two daily trains, and one train six days per week. Between Moncton and Shediac there is a train six days a week.

(5) Relative to the service between Quebec and Chicoutimi, Mr. Stoker is apparently referring to the day train, but there is a night train leaving Quebec at 10.20 p.m. which arrives Chicoutimi 7.30 a.m., and that there is a sleeper on this train.

I consider it only fair to the Canadian railways to draw these matters to your attention, so as to avoid misunderstandings regarding the railway situation in Canada.

Yours faithfully,
JAS. B. THOM,
European Manager

The "C" Licence Concession

Hurst Wickham. March 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The many thousands interested in the "C" motor road licences all will be relieved at the withdrawal of the 40-mile limit restriction, most tardy though it is. I wonder if pressure by Socialist Wholesale Co-operative Societies was the cause of the decision? "W.C.S. gets things done!"

Yours faithfully,
G. A. SEKON

American Passenger Equipment

Cambridge. March 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. W. R. D. Manning suggests in his letter of March 3 that our railways should furnish their first class carriages in the sumptuous style adopted on the latest "named" American expresses. The present trend of events will not permit of any such waste of material and labour. The standard first and third class coaches, being built for main-line traffic, meet all the requirements of travellers in this country, where the average railway journey in normal times is less than 20 miles. Our railways own as many passenger coaches as the American railways with eight times the route-mileage used by passenger trains.

Each coach on our lines carries in a year three times the number of persons conveyed in the average American coach. In 1938 the number of passengers starting their journey on the L.M.S.R. alone was 410,000,000; the whole of the U.S.A. railways could muster no more than 453,000,000. To carry its passengers, the L.M.S.R. ran 103,668,000 train-miles, or 41 per route-mile per day; all the U.S.A. lines, with their vast territory to serve, ran only 481,500,000 passenger train-miles, or 8 per route-mile per day.

The problem of our railways is to find seats for people who want to travel; in America, outside a few densely populated areas, the difficulty is to induce people to go by train. The Pere Marquette cannot be taken seriously as a passenger carrier. Of its 1,915 route-miles, only 895 are used by passenger trains. In a year, passenger train-miles total 1,289,000, or 4 per route-mile per day. Last year's passenger revenue was

$2,500,000, as compared with a freight revenue amounting to the sum of $45,000,000.

Similarly, the Milwaukee is a freight road. Of its 10,700 route miles, nearly 7,000 carry passenger trains, but only to the extent of 6 train miles per mile per day. The Milwaukee's passenger revenue of $28,000,000 last year compared with a freight revenue of $152,000,000. Again, the Reading runs passenger trains over half its mileage only, though the services are frequent for America—22 train miles per route mile per day—but last year's passenger revenue of $10,000,000 was less than one-eighth of the freight revenue.

One suspects that, to a great extent, the American railways are running luxurious "named" trains either for the sake of prestige or as an advertisement. This policy has been pursued since 1934 and may recover some traffic lost to road or air, but whether it pays is very doubtful. Under nationalisation, the tendency in Great Britain will be almost certainly to standardise on a somewhat austere basis and to avoid anything that seems to smack of extravagance.

Yours faithfully,
EAST ANGLIAN

Snow Ploughs

13, North Gardner Street,
Glasgow, W.2. March 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The letter from Mr. George Dow, Press Relations Officer of the L.N.E.R., in your issue of March 21, told me little that I did not know already, and I have no doubt that his remarks could be echoed by the L.M.S.R. Rotary ploughs may be slow in operation, but I am convinced that the line between Manchester and Sheffield could have been kept open all the winter if rotary ploughs had been used in conjunction with V-shaped ploughs. As it was, one of the most important sections of the L.N.E.R. was blocked for days. And this was only one of the hundreds of blockages reported throughout the country.

For us, this has been an exceptionally severe winter—but so were the winters of 1940, 41 and 42, when blockages and delays were of considerable extent. In some countries, notably Canada and parts of the U.S.A., such winters would be considered normal, or even mild, and yet they manage to cope with much worse conditions. Why not study and use their methods? The fact that any heavy fall of snow in this country completely disrupts the railways, proves, to my mind at least, that their methods of dealing with such conditions must be unintelligent.

Mr. Harold Nicolson, writing in *The Spectator*, contended that we were the only country in Europe which did not prepare for winter, and that when the warm weather arrived we should refer to the "cold snap!" It would seem that the British railways share the national failing of not being prepared.

Yours faithfully,
G. RICHARD PARKES

Manchester. March 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of March 7, Mr. Parkes urges the use of a rotary snow plough supplemented by V-shaped ploughs. The former is a very effective machine for dealing with deep snow, but there are few places where such severe conditions occur with any regularity, and I believe in many cases the lines concerned are of a secondary character, not carrying heavy traffic. It is not certain that a rotary would perform equally well in this country, where the snow is of a different quality owing to the more humid atmosphere and less intense cold.

The V-shaped plough in common use is a particularly unsuitable instrument. With every succeeding trip it becomes increasingly difficult to displace the fresh snow sideways into the hard packed mass already pushed there, and such ploughs often have stuck with a very moderate amount of snow lying on the track between the side walls.

The ploughs used by the former N.E.R. appear to be superior, in that the snow first is lifted before being directed to either side. Being independent vehicles, they can be put into service at very short notice, and the provision made for carrying men, tools, and food in the van built into each plough is an advantage.

Whilst these ploughs will not succeed always, it must be realised that the greater part of the railways' difficulties on main lines is caused by quite a moderate depth of snow. As a rule deep drifts form on such lines only after traffic has been stopped already by (*a*) blocked points; (*b*) heavy goods trains brought to a stand by snow dragging on the wheels; (*c*) derailments, both on plan track and at check rails. A frequent passage of the ploughs and the avoidance of unduly long intervals between trains is a decided help, and to this end, as also to minimise the use of points, traffic should not be diverted into loop lines. A train standing in a loop forms a barrier against which the snow drifts, so that both the adjacent main line and the loop are in danger of being blocked. Delay to passenger trains is inevitable if they are to take their turn with the other traffic, and no doubt this forms a deterrent when prompt action is called for at the commencement of a storm, the duration of which cannot be known. It frequently is quite impossible to retrieve the position after failure at this stage.

The number of ploughs is quite inadequate to deal with such widespread snow as we have experienced recently, and it is hardly possible to make equal provision throughout the country.

There are certain sections of main line where more ploughs should be provided, and existing V-shaped ploughs replaced by a more suitable form. Ploughs always should be run in pairs, one at each end, and it is possible that two engines of medium power coupled back to back are better than one heavy engine.

Jet aero engines are reported to be very effective at the cost of a high rate of fuel consumption. The development of a simplified equipment to give similar results seems to warrant investigation. The machine should be suitable for installation in the ploughs for use when necessary and, must be able to withstand long periods of idleness without deteriorating.

Yours faithfully,
H. BELL

Railway Electrification in Great Britain

Southern Railway,
General Manager's Office,
Waterloo Station, S.E.1. March 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I should like to reply to the letters from your two correspondents in your March 21 issue regarding the electrified services of the Southern Railway during the recent cold weather—the hardest in living memory.

"Northern Heights" states that "if the main lines of the other companies had been electrified on the third-rail principle, the Midlands and North of England would have been without railway services for days, if not weeks on end." This is an assumption which no-one can prove or disprove. The weather conditions frequently were less severe in the North of England than in the South during this recent severe spell. What is a fact, however, is that on the Southern Railway, in very severe weather, the electric services as a whole were seriously interfered with only on March 4 and 5, when the rain froze as it fell. Assistance by steam locomotive was to the extent of ten or twelve engines helping electric trains as follows:—

NUMBER OF ELECTRIC TRAINS HELPED BY STEAM ENGINES

	March 4	March 5
London East Division	7	17
London Central Division	24	22
London West Division	16	28

With regard to the de-icing arrangements on the Southern Railway, but for our inability to obtain certain materials such as tanks, pipes, and so on, they would have been all-embracing. As it was, the system of third-rail protection used by us proved efficient night after night on the lines where it was used, when, with temperatures below freezing, points were frozen and brake ejectors on steam engines were out of action. Electric trains for the most part ran with regularity, and it should be remembered that the number of electric trains operated on this system averages 4,500 a day, easily the highest in trains per track-mile of any system of its size in the world.

These facts, I hope, dispose of the statement made by your correspondent to the effect that the Southern Railway electrification is intended for "sunny days and not for hard grey weather and wild north-easters."

Your other correspondent, Mr. Barrett, surprisingly states that the Southern Railway has "chosen to ignore the Ministry of Transport standard method of electrification which is 1,500 volts d.c. with overhead conductors." This, of course, is quite wrong. The Railway (Standardisation of Electrification) Order, 1932, lays down two standards for this country: (1) Higher voltage, 1,500 volts (overhead conductor); and (2) lower voltage, 750 volts (third-rail conductor). Nothing could be more explicit.

Yours truly,
C. GRASEMANN
Public Relations Officer

The Scrap Heap

A Good Driver

Mr. J. R. Tyler, writing from 31, St. Andrews Road, Acton, says:—Travelling into the West Country last week, my train was reversed on to the up line (through the down road being under repair). After proceeding some little way with the journey on this wrong track, we passed a local train in a platform on our normal line. Crossing back on to the down line in front of this train, we then noticed an up train waiting to go forward.

A lady in the compartment looked at me in amazement and said: "Isn't he a good driver to steer us clear of those two trains!"—*From "The Times."*

* * *

100 YEARS AGO

From The Railway Times, *March* 27, 1847

THE GREAT NORTHERN RAILWAY.—(Incorporated by 9 and 10 Victoria, 26th June, 1846.)—LONDON AND YORK AND DIRECT NORTHERN.—NOTICE IS HEREBY GIVEN to the holders of London and York and Direct Northern Scrip, that they are required to send in the same to the Company's Office, on or before the 31st March inst., for registration as Great Northern Shares, printed forms for which purpose may be obtained on application; and that failing so to send in and register such Scrip by 31st March, the Directors will, as they are empowered to do, forthwith proceed to register the same in the names of the parties to whom were originally allotted the Shares which such London and York and Direct Northern Scrip represent.

A Call of £1. 5s. per Share has been made on the London and York portion of the Shares (see published notice of this date), and which call cannot be received till the Scrip is registered.

By order,
J. R. MOWATT, Secretary.

Company's Offices, 14, Moorgate-street,
(Removed from 7, Lothbury.)
London, 1st March, 1847.

* * *

Four-Minute Trip Takes Twenty Minutes

Long lines of traffic were held up in a hopeless jam outside Mansion House Station the other day by road repairs at the junction of Cannon Street and Queen Victoria Street. The traffic stretched as far back as Blackfriars Bridge and Fleet Street, and buses took 20 minutes to cover the four-minute journey between Ludgate Circus and the Bank.—*From "The Evening News."*

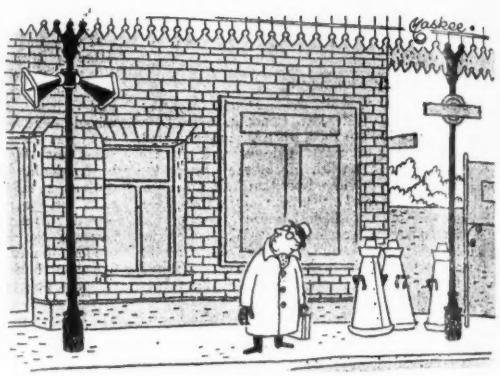
"Timeous"

I am reminded (writes T.H.) that the word "timeous" is, or at any rate used to be, a favourite with the Scottish railways. I first met it when I observed in a station somewhere in Scotland a notice about (or should I say anent?) "the timeous departure of trains." On looking it up in the Oxford Dictionary I found, in addition to the legal examples, this quotation from the Highland Railway timetable for July, 1910: "Stops to take up for east of Aviemore on timeous notice being given to the station master." Is there any other example of a railway timetable being quoted as an authority on a point of language?—*From "The Manchester Guardian."*

* * *

"A Few Hours' Delay"

At 6.45 p.m. on Tuesday, March 18, the 8.15 p.m. express from Glasgow steamed into Stranraer Station with 18 weary passengers—five days, 18 hours, and 50 minutes late; the passengers had not been in bed since seven nights before. When the train left St. Enoch Station, Glasgow, last Wednesday night, passengers were told that the direct coast-line to Stranraer was blocked, and the train was being diverted through Dumfries. "You will probably be delayed a few hours," station officials told them. Everything went fairly well until the train reached Dumfries at 12.20 a.m. on Thursday; then its 60 passengers heard that the Dumfries-Stranraer line was blocked by snow. The train then remained at Dumfries Station until Monday evening, where news was received that there was a possibility of reaching Stranraer by road. Two taxi-loads began the 55-mile journey, and reached Stranraer the following afternoon. On Tuesday afternoon at 3 p.m. the train left Dumfries to finish the journey to Stranraer.—*From the "Daily Mail."*



"Mr. Jones—let go of my hand this instant!"

[Reproduced by permission of the proprietors of "Punch"

Emergency Stop

A passenger returning from London to Northumberland in response to a telegram that his wife was seriously ill, was misdirected by a porter at Kings Cross, and got into the 10.45 p.m. for Hitchin. At the first stop—Welwyn Garden City—he told the guard and station foreman, who said he would contact L.N.E.R. control at Knebworth. The passenger was advised to stay on the train to Hitchin. There, the Newcastle express, normally non-stop to Peterborough, was pulled up and the passenger caught his train.

* * *

A Debt Repaid to the C.P.R.

Mr. Frank Foulds, President of the Agricultural Institute of Canada, announced recently that the Mennonites of Canada had repaid the whole of a $2,000,000 debt to the Canadian Pacific Railway Company incurred in 1923, when a Mennonite colony in Russia moved to Canada. The bargain was made in 1923, when Lenin permitted the Mennonites to leave Russia for Canada, allowing them to take no money, only clothes and personal effects. The C.P.R. aided their immigration with only the signatures of six penniless men as security, and settled them in parts of Ontario, Manitoba, Alberta, and British Columbia.

* * *

Government Motoring

Mr. Wilmot, Minister of Supply, has stated that Government orders for passenger cars outstanding at January 25 were 3,095, at an estimated value of £1,212,000. Below is a list of vehicles delivered between August, 1945, and January 25, 1947:—

Department	Number delivered	Total value £
Admiralty	155	64,848
War Office	83	87,980
Central Office of Information	30	13,041
Control Commission for Germany and Austria	568	219,335
Customs and Excise	44	13,293
Department of Agriculture for Scotland	40	11,385
Foreign Office	80	65,808
General Post Office	46	12,453
Home Office	35	9,292
Imperial War Graves Commission	28	9,712
Ministry of Agriculture	265	57,152
Ministry of Education	97	22,529
Ministry of Food	20	5,105
Ministry of Fuel & Power	25	9,005
Ministry of Health	62	15,728
Ministry of Labour	66	18,772
Ministry of Supply	150	54,202
Ministry of Transport	27	7,017
Ministry of Works	203	59,882
National Savings Committee	23	5,611
Other departments (for which less than 20 cars were bought)	42	15,541
	2,089	£777,691

From "The Times."

Avoid the Vanishing Act

Try never to leave a caller hanging on the line. If you must go away to get information he wants, say how long and stick to it. Better still, take his name and number and offer to call back. (Oh yes, and then do it!)

To get it right, write it down

If a caller asks you to do something, or gives you a message for someone else, get it right . . . *write it down!* Have pad and pencil beside your telephone . . . nailed and tied if necessary to keep them from disappearing.

All righty, sister! Nope! Yep! You said it!

Using slang, or saying "Lady" . . . "Sister" . . . "Mister" . . . "Brother" . . . are all good ways to lose friends and influence people to use some other form of transportation. If caller's name is known, use it. Anyone appreciates this courtesy. Otherwise say, "Sir," or "Madam."

The art of hanging up

If you have been prompt, attentive, clear, courteous and pleasant all the way through a telephone talk . . . then don't spoil it all at the end. Say "Goodbye" in your pleasantest voice. And to be *sure* the caller has finished, let him say, "Goodbye" *first*.

[From "Company Manners" issued by the New York Central System

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

General Manager's Report

The report of the General Manager of the South African Railways & Harbours, Mr. W. Marshall Clark, for the year ended March 31, 1946, has been tabled in the Assembly. Although railway transport services showed a surplus of more than £12,000,000 on the year, the final deficit was £718,000, after taking into account interest charges, miscellaneous receipts and expenditure, and the loss on subsidiary services. The total deficit on all the administration's operations was £1,870,088, after making revenue appropriations totalling £987,000. The deficit in the previous year was £288,465.

Heavy Passenger Traffic

Although the volume of military traffic declined very substantially after the cessation of hostilities, the number of passenger journeys undertaken during the year increased by more than 15,000,000 as compared with the figure for 1944-45. The most spectacular increase recorded was in third class travel, the number of journeys rising from 99,538,666 to 108,710,602. In spite of the shortage of engine power and rolling stock, the transport needs of the country were met satisfactorily by the intensive organisation of coach and wagon movements, and the use of every locomotive to the best advantage. Test trains have been run already, and more will be run, between several of the larger centres with a view to an all-round speed-up of both passenger and goods train services.

Safety Record

Not one passenger was killed in a train accident during the year ended March 31, 1946, in spite of the fact that a record number of 233,924,293 passenger journeys was undertaken, and only 5 passengers were injured. Level crossing accidents in which vehicles were involved numbered 160, causing 124 casualties, of which 47 were fatal. Fourteen pedestrians were killed and 5 injured at level crossings. Prosecutions against drivers of road vehicles involved in level crossing accidents led to 36 court convictions. Accidents incidental to railway operation, other than accidents to trains and mishaps at level crossings, were responsible for 250 deaths, and for injuries to 196 persons. The chief cause, as in the past, was trespassing on railway property.

UNITED STATES

Week-End Sports Trips by Sleeper

Winter sports enthusiasts in Chicago were offered a novel seasonal service this winter by the Chicago, Milwaukee, St. Paul & Pacific. The company ran a special sleeping car on Friday evenings to a selected resort in the Wisconsin—Michigan area, according to where weather and snow conditions were most suitable. The return trip was timed to give arrival in Chicago at 6.50 a.m. on Monday morning.

Pennsylvania "Red Arrow" Derailment

On February 18 the "Red Arrow" express of the Pennsylvania Railroad was derailed on a curve near Altoona. The two "K-4" Class locomotives and five vehicles were derailed and overturned, coming to rest in various positions on the embankment and in a ravine which is about 55 ft. below rail level. Four more vehicles were derailed but remained on the permanent way, and the four rear vehicles did not leave the track. The accident caused the death of 22 persons, and injuries to some 124 others.

Travel on Credit

Arrangements have been made by 35 railways to issue tickets on presentation of travel credit cards. The cards are issued to individuals, and to companies for their employees, by the Rail Travel Credit Agency, which has been set up by the lines concerned. Holders of the cards present them at the booking office, sign a receipt, and are issued with a ticket to the destination required. Companies and individuals subscribing to the plan are sent a monthly bill. Similar arrangements were made earlier by the Chesapeake & Ohio, Pere Marquette, and New York, Chicago & St. Louis. These companies accept the credit cards issued by the new Rail Travel Credit Agency.

CANADA

New Train Ferry Terminal

A contract for a $4,000,000 terminal at Cape Tormentine, New Brunswick, to accommodate the new C.N.R. Prince Edward Island train ferry, *Abegweit*, has been let to the Thompson Construction & Engineering Company, of Toronto. The new ferry, under construction at Sorel, Quebec, is expected to be ready for service some time this year. The contract covers erection of a pier and breakwater at Tormentine, at the mainland end of the Northumberland Strait ferry route. It is expected that construction of the terminal will take three years, and stone quarries in eastern New Brunswick and Nova Scotia border areas are re-opening to provide the thousands of tons of rock fill needed for the project.

CHILE

State Railways Improvements

The Chilean State Railways administration is making plans to increase the traffic capacity of its system. New locomotives and rolling stock will be ordered, and numerous single-line sections will be doubled. Heavier rails and new signalling equipment are included in the programme. It is intended eventually to electrify the whole of the main line. At the present time the Valparaiso—Santiago line (143 miles) is electrically worked, and it is proposed to order 14 new locomotives for this section. Eight will be for main-line service, and the remainder for shunting duties.

VICTORIA

Consumption of Firewood by Locomotives

Goods and pilot locomotives of the Victorian Railways consumed 75,000 tons of firewood in recent months, thereby saving approximately 25,000 tons of coal. In June last year, only two days' supply of locomotive coal was on hand, but as a result of precautions taken earlier, there was two weeks' supply of firewood available at selected fuelling points. In addition to the principal locomotive depots and main-line stations, some 75 stations on branch lines were allocated 3,500 tons of firewood.

The consumption of firewood last year was a record, the nearest approach to it having been in 1940, when 50,000 tons were burned. After October 19 it was necessary to discontinue the use of this fuel on account of fire risks arising with the advent of warmer weather.

PALESTINE

Citrus Traffic

With the citrus season in full swing, the number of cases of oranges and other fruit transported from the fruit-growing areas to Haifa Port was nearing the 4 million mark at the end of February. Work at Haifa Port has been hampered frequently by the imposition of curfews by the military authorities. On every occasion when an illegal immigrant ship arrives, or terrorist activity is rife, all loading of citrus ships ceases and imports are stopped. As a result, congestion makes efficient handling of cargo difficult. Three sheds are allocated permanently to citrus fruits, and an average quantity of 100,000 cases is normally held in transit from rail to ship.

SWITZERLAND

Restoration of Train Services

Abundant snowfall and rain in recent weeks have enabled the Swiss Federal Railways to restore all the electric trains withdrawn to economise current on February 3 (see *The Railway Gazette* of February 7). The restoration took place on March 17, the date on which it had been foreseen that further reductions might have been necessary had not weather conditions changed. Heating on trains is now permitted outside the previous restricted period of 10 a.m. to 5 p.m., but temperatures must be limited to a maximum of 57° F.

Rhaetian Fare and Rate Increases

Although traffic receipts of the Rhaetian Railway this year are expected to exceed those of 1946, increased working costs are estimated to result in a final unfavourable balance. The company has decided, therefore, to defer some construction and maintenance work, and to introduce certain higher rates and fares as from April 1. Various cheap tickets and season rates will be increased by 10 per cent., and the two-day seasons, known as "popular tourist tickets," will go up by 20 per cent. The company will anticipate a general adjustment of Swiss rates, to become effective on January 1, 1948, by suspending as from April 1 this year a number of excursion and bulk travel facilities.

FRANCE

Goods Traffic Well Maintained

Although the coal shortage in France has led to the suppression of numerous passenger train services between Paris and the provinces, and also of cross-country services, freight traffic is being well maintained. Weather conditions have not been unfavourable, and the cut of 5 per cent. in freight rates consequent on the Government's policy of a general reduction in prices throughout the country is a helpful factor. Rates had been raised 13 per cent. at the beginning of the year. Further, the French National Railways have made a general reduction in freight rates for traffic between Switzerland and the port of Marseilles, to meet increasing competition from the Italian lines, with their shorter route and lower costs, for Swiss trade through the port of Genoa. The new French rates give the Swiss an advantage in continuing the trade through Marseilles.

L.M.S.R. to Experiment with Main-Line Diesel-Electric Locomotives

Tests to be made on fast passenger and freight, and branch services

THE L.M.S.R. has decided to introduce diesel-electric traction to its main-line services. Diesel-electric locomotives are being built for experimental use in main-line passenger and freight services, including the most important express passenger trains on Anglo-Scottish services.

The first experimental design is for express passenger services. The diesel-electric locomotive will be of 3,200 h.p., composed of two 1,600-h.p. units coupled, and will be capable of hauling the heaviest trains between London and Glasgow, or alternative fast light trains between these cities. The new type of locomotive will be able to work services comparable with the pre-war "Coronation Scot" train.

The new locomotive will be in two units, and the English Electric Co. Ltd. is providing 16-cylinder diesel engines of 1,600 h.p. and electrical equipment, for each unit. The diesel engine will be to the firm's own design, based on the engine used in the L.M.S.R. diesel-electric shunting locomotive. The L.M.S.R. is building the mechanical parts of both units at Derby Works. The weight of the locomotive will be 220 tons, and it will be capable of speeds of 100 m.p.h. A flexible gangway is being provided between the units, so that the length of the locomotive can be traversed for inspection purposes while running. The first locomotive of this type will be put into service between Euston and Glasgow, in competition with the modern 4-6-2 type steam locomotive.

Single Unit for Suburban Trains

The second experiment of diesel-electric locomotives is the use for separate work of each of the two units which make up the express passenger locomotive. These 1,600 h.p. locomotives will be used for suburban and semi-fast passenger trains and medium weight main-line freight services such as are now hauled by large 2-6-4 tank steam locomotives. Examples of the work which the new locomotive will undertake are the outer London suburban passenger services to Bletchley and Luton, passenger and freight working on the North Stafford section round Stoke, and in the Derby, Nottingham, and Leicester areas.

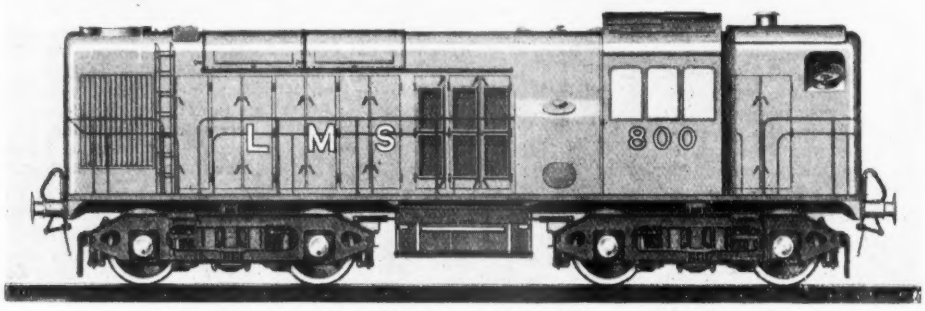
The third experiment is an 800 h.p. diesel-electric locomotive suitable for branch and cross-country passenger and freight services, of comparable capacity with the company's small 2-6-2 tank steam locomotives. The 16-cylinder diesel engine, generator, traction motors, and control gear will be provided by the British Thomson-Houston Co. Ltd. The engine will be built by Davey Paxman & Co. Ltd., as a sub-contractor, and will be of a design developed by Davey Paxman for the Admiralty during the war.

To obtain the highest possible use of the locomotive, it is being designed so as to be capable of secondary passenger and freight services and shunting; and to give good vision fore and aft for the driver, it will be of the single-cab type with the engine encased under a bonnet.

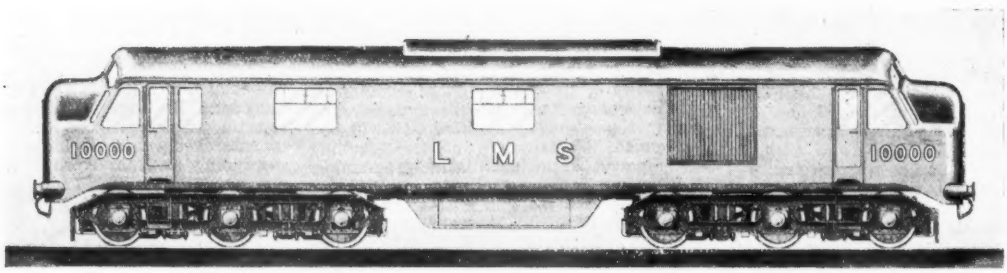
This locomotive should be capable of speeds of 60 m.p.h. with light passenger trains, and on completion it will be used on a variety of mixed services.

These main-line diesel-electric locomotives will result in a substantial saving of

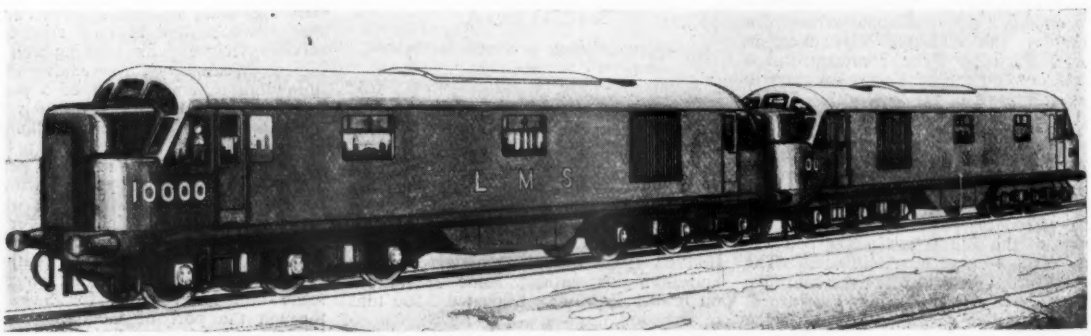
(*Continued on page* 307)



Diesel-electric locomotive of 800 *h.p. for branch lines and freight service*



Single-unit 1,600 *h.p. locomotive for suburban and semi-fast trains*



Diesel-electric 3,200 *h.p. locomotive for main-line service*

Notes on the Brighton Electrics in 1946

Summarised results of 35 non-stop journeys from Brighton to Victoria by Southern Railway multiple-unit trains

THOUGH lacking the glamour usually associated with steam operation, the Southern Railway electrics, in certain aspects of their working, provide a field of some interest for study and detailed analysis.

Guards' journals and other records furnish the bare essential official information, but impartial detailed observations, spread over a considerable period, also have some value as showing everyday working details under all conditions, with due allowance for delays not contemplated in the working timetables.

For instance, between January 1 and December 31, 1946, the writer made 35 journeys from Brighton to Victoria by non-stop trains composed of express stock; these journeys were spread evenly over the 12 months under all kinds of weather and other conditions. The trains concerned, the 9.35, 11.25, and 1.25, were, during the first four months, of wartime make-up, 5-, 10-, and 11-coach sets.

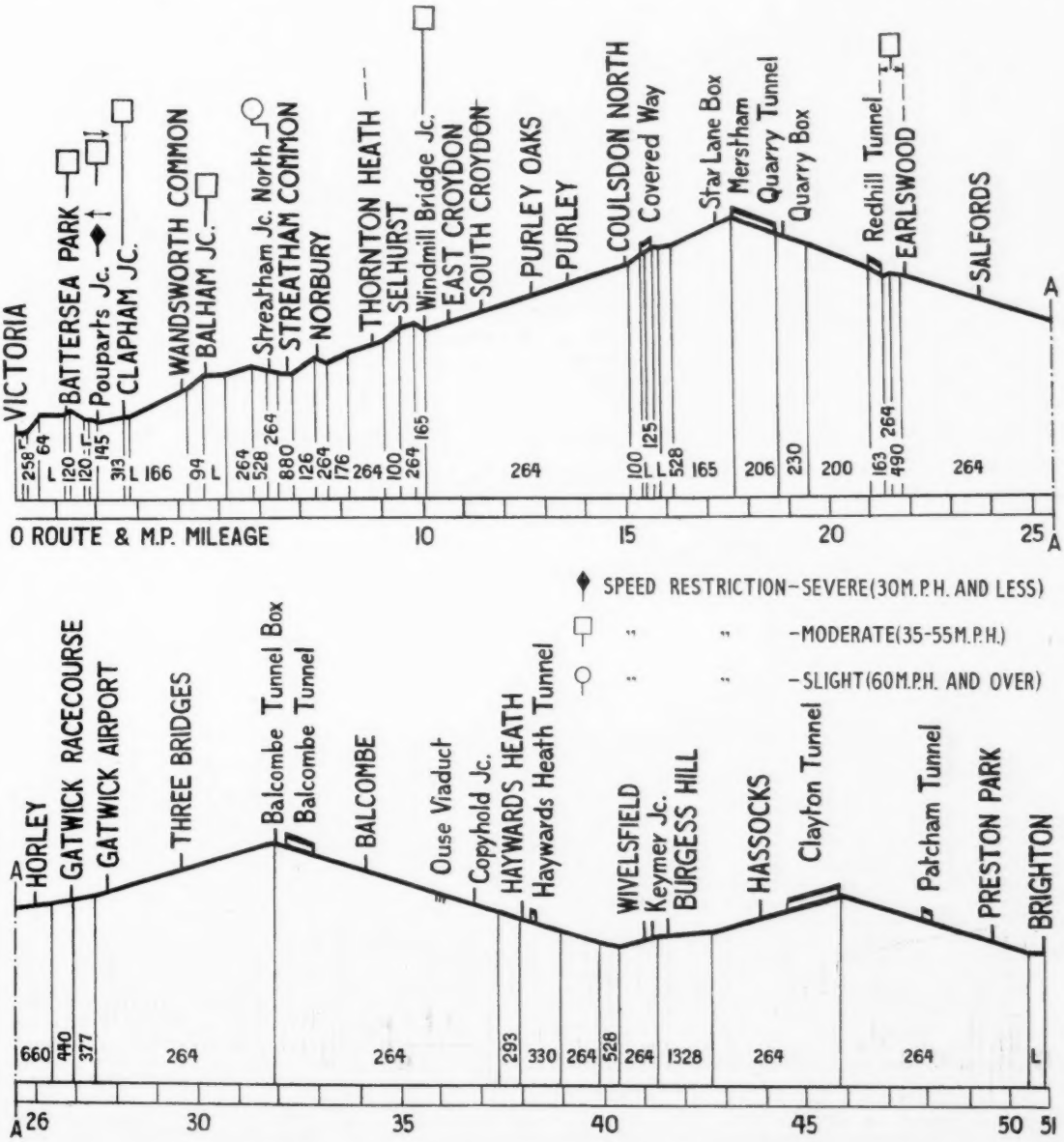
Subsequently, they were 6- and 12-coach sets, and also of 11-coach composition, namely, five "Brighton Belle" Pullmans, plus a 6-coach set. It will be remembered that all these make-ups contain either two motor coaches in the case of the 5- and 6-coach sets, or four in the other cases, the horsepower available in two motor coaches being 1,800, and 3,600 in four. The following table compares the various compositions and the rated power available:—

VARIOUS POWER-LOAD RATIOS WITH DIFFERENT TRAIN COMPOSITIONS

Composition	Tare weight Tons	H.p. available*	H.p. available per ton	Per cent.
5-coach	223	1,800	8·01	118
6-coach	266	1,800	6·77	100
10-coach	446	3,600	8·01	118
11-coach (wartime)	489	3,600	7·36	109
11-coach (including "Belle" Pullmans)	515	3,600	6·99	103
12-coach	532	3,600	6·77	100

* Horsepower available is at one-hour rating

Though this variation of up to 18 per cent. in the power-load ratio is reflected in



Gradients of London—Brighton main line (via Quarry route), Southern Railway

uphill speeds, 5- and 10-coach sets generally being capable of speeds up to 5 m.p.h. faster than 6- and 12-coach sets, average speeds over undulating grades appear to be little if at all affected by that ratio. In fact, the fastest net time (allowing for out-of-course delays) recorded between Brighton and Quarry Summit—which, as explained below, is the crucial part of the journey—was with a 12-coach train. The various train compositions are, therefore, not treated separately in the analyses below.

Only one of the 35 journeys from Brighton to Victoria was made without a single out-of-course traffic or engineering delay. By out-of-course delay is meant a signal check or stop, or an engineering speed restriction not permanently in force; in fact, a delay that is not considered in the working timebook. It should, however, be pointed out that in the case of 29 out of the 35 runs, the train was diverted over the turnout and crossover from the fast to the local line at Coulsdon North, involving an additional 30-m.p.h. restriction, meticulously observed in every instance; and also necessitating abnormally slow running round the No. 1 platform road reverse curves at East Croydon. The other 30-mile speed restriction, at Poupart's Junction, and the less severe ones elsewhere also were scrupulously adhered to, and special care was taken over the crossovers outside Brighton, sometimes involving unusually slow starts.

Considering first of all overall gross times taken irrespective of out-of-course delays, we find that the booked time of 60 min. was exceeded only 16 times, six of the excesses being merely fractional. Once only did any of the 35 trains take over 65 min., and that was due to a dead stand of 9 min. at a signal and two other out-of-course checks; two trains took between 64 and 65 min.

Taking into account out-of-course delays, no net time exceeded 60 min., a satisfactory record in view of arrears of maintenance and lack of materials, and a feather in the caps of the motormen. An even finer achievement was, however, the average net time of all the 35 runs, almost exactly 56 min. No fewer than nine journeys were completed in net times of 54 to 55 min., and eleven others in from 55 to 56 min. (With ample runs recorded, net times can, as a rule, be computed comparatively easily and precisely.)

Though these are excellent results, they could undoubtedly be bettered if occasion demanded, for on 26 occasions Quarry Summit, 33·4 miles from Brighton, was passed in 34 min. net or under, leaving 26 min. for the remaining 17½ downhill miles to Victoria. With very easy running—seldom exceeding 63 m.p.h. even on the most favourable stretches—this distance was covered many times in about 22 min. net.

Turning now to net times taken to pass cardinal intermediate points, and comparing them with mileages and schedules, it is noteworthy that the initial 12·9 miles to Haywards Heath is booked to be covered in 14½ min. With one doubtful exception, the net time exceeded 14½ min. only twice, and then by only about ¼ min.; 30 times it was 14 min. or less, and mostly between 13 min. and 13½ min. The fastest time was 12 min. 57 sec., all but even time (60 m.p.h., or 12 min. 54 sec.).

The net passing times at Three Bridges, 21·4 miles—against a booking of 23½ min.—varied between 20 min. 40 sec. and 23 min. 23 secs., so that not once was the schedule exceeded. Even time (21 min. 24 sec.) was improved upon 12 times, and 22 min. was exceeded on only eight occasions.

There is no scheduled passing time at Quarry Summit, at the north portal of the tunnel of that name and 33·4 miles from Brighton. On 13 runs the net passing time was under even time, and on only nine occasions was it over 34 min.; the fastest time was 32 min. 9 sec. It should be noted that the 8¼-mile climb to this summit—graded at 1 in 264 for 4 miles, followed by 4¼ miles at 1 in 200-230—is broken by a speed restriction through Earlswood Junction, so that the above achievements are all the more creditable.

Despite the Coulsdon speed restrictions, already mentioned, and invariably easy downhill running thence, East Croydon (40·3 miles) was passed, at slow speed, 21 times in 42 min. net or less, and in even time or under on three occasions.

It must be agreed that all the above figures are uniformly satisfactory, especially in view of the fact that they relate to *all* the up journeys on non-stop trains made by the writer during the year, and were recorded under all kinds of conditions. They prove conclusively—if indeed any such proof be necessary—that when the present shortages of sleepers and rails are ended, and acceleration is considered desirable, there would be no difficulty in working to a 55-min. or even a 50-min. schedule in normal peacetime conditions, subject to a corresponding acceleration of the semi-fast, stopping and suburban services.

Careful study would, no doubt, be necessary before it could be proved whether or not this would be feasible. Moreover, a few more minutes could be economised by improving the layouts and obviating existing speed restrictions and frequent signal delays in the Earlswood, Croydon, and Clapham Junction areas; and, in particular, by laying high-speed junctions at Coulsdon North and Poupart's Junction.

The almost daily delays to many down expresses in the business rush hours are likely to increase rather than diminish until the double-line section of the main line (to Brighton, Eastbourne, Hove, Worthing, and Littlehampton) from Balcombe Tunnel box southwards can be widened. This 20-mile quadrupling would, however, be a costly major construction work, involving duplication of the Ouse Viaduct; and Balcombe, Haywards Heath, Clayton, and Patcham tunnels; and the two-mile Clayton cutting. It would reduce the chance of delays to up trains also.—F.S.B.

Electrification in South Africa

Progress towards elimination of steam working for passenger and goods traffic in the inner Reef area

NOTABLE progress has been made by the South African Railways & Harbours with a programme designed to eliminate steam working and to substitute electric traction for passenger and goods traffic on the main line within the inner Reef area. This area is bounded by Welverdiend in the west, Vereeniging in the south, Welgedacht and Springs in the east, and Pretoria in the north. The efficiency of the existing electric service on the Reef also is being increased, and the first of 28 new electric locomotives from Great Britain arrived in February. These units are designed for a speed of 65 m.p.h. with greater loads than at present.

Four of these large new locomotives will be allocated to test running on the electrified section from Volksrust to Durban, making the daily fast run to and from Durban. This will enable the train to Durban to leave Johannesburg at 4.45 p.m. instead of at 3.40, giving a saving of 65 min.

The immediate task is to keep pace with mining development on the Far West Rand, and the railways are concentrating on extending the electrified line from Randfontein to Welverdiend. Other sections on which electrification is progressing steadily are the line from Bank to Nancefield *via* Midway, and the Rand mineral line. When the Rand mineral line and the extension to Welverdiend are complete, it will provide a through electrified line for goods traffic from Angelo and Germiston to Welverdiend *via* Jupiter, without encroaching on the main Reef line. It is also proposed to electrify the line from Union to Vereeniging. Work has begun already on the doubling of this section.

A new line is being built from Springs to Welgedacht for the diversion of goods and coal traffic from the Witbank area to the Far East Rand. This new line also will be electrified. The aim within the inner Reef area is to give precedence to replacing steam working by electric traction for goods traffic. To bring this about, all goods sidings on the existing electrified sections will have to be wired. A certain amount of steam working will be retained, however, for shunting and running in and out of private sidings. It has been found that slow moving steam trains working in between the intensive electric passenger service on the Reef tend to slow up the service and hinder train operating.

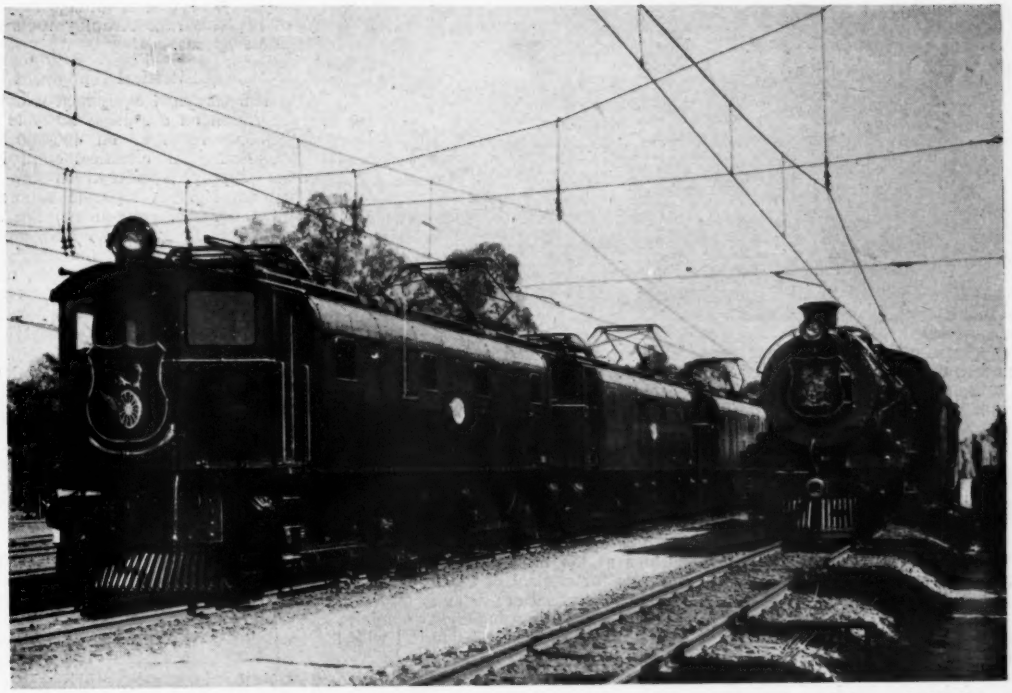
With the complete change-over to electric working, the steam locomotive depot at Braamfontein will be eliminated, and the boundary stations of the electrified area will be converted to locomotive-changing depots. Braamfontein yard will be remodelled to provide for the more extensive use of electric traction. Work has begun already on the erection of large electric running sheds at this depot, as well as the extension of the passenger coach yards.

The 28 new electric units are intended mainly for the Reef and Pretoria service. On the Reef service they will be used exclusively for passenger trains for the time being.

The new locomotives have six driving axles and a rating of 2,500 h.p., compared with the four driving axles and 1,200-h.p. rating of the largest electric locomotives at present in use. They are twice as large and weigh 110 tons, which is almost twice the weight of the units now in use.

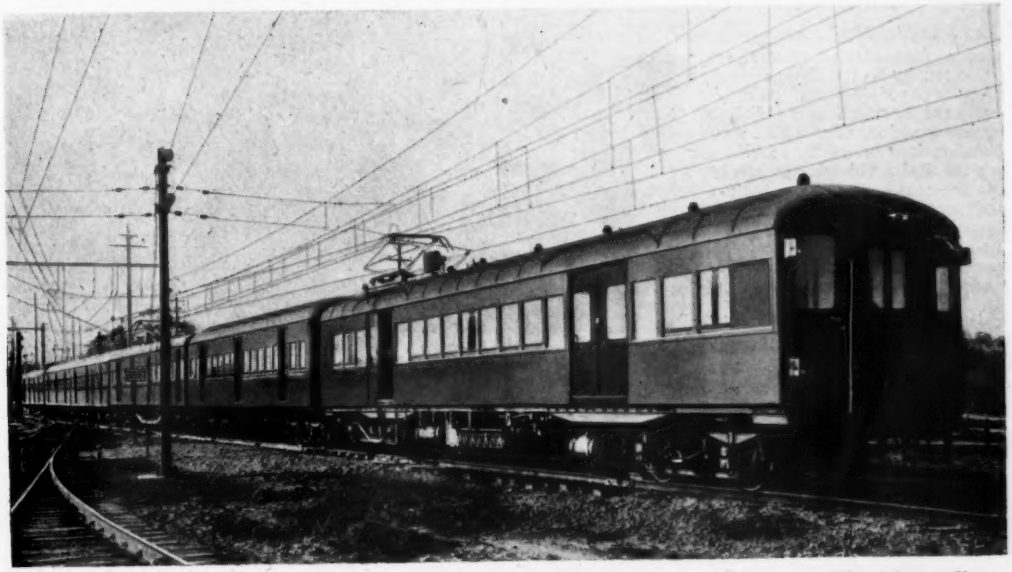
They are essentially main-line locomotives, and provision has been made for supplying steam heating to passenger coaches. An electric boiler is provided for this purpose. The locomotives were manufactured in Great Britain by the Metropolitan-Vickers Electric Export Co. Ltd., to designs and specifications prepared by the South African Railways.

Electric Haulage for South African Royal Train



A view at Harrismith Station showing the Royal Train, which had just arrived from Maseru behind two steam locomotives; and the pilot train leaving for Ladysmith hauled by three Metropolitan-Vickers electric locomotives. Three similar electric locomotives worked the Royal Train forward

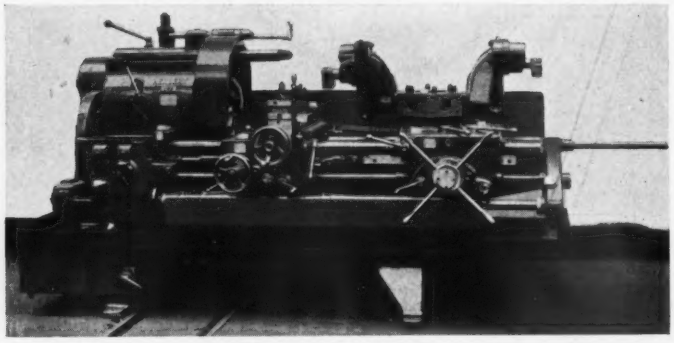
Sydney Suburban Electrification, New South Wales



New South Wales Government Railways electric train in the Sydney suburban area. The Metropolitan-Vickers Electrical Co. Ltd. has supplied 536 sets of electro-pneumatic control equipment for these services, which cover 110 route-miles

A New Combination Turret Lathe

A Herbert design for high-speed machining with carbide tools



IN order to make the most efficient use of modern carbide tools for high-speed cutting, it is necessary for the lathe to have the qualities of ample power, rigidity, and durable construction. It is with these points in mind that Alfred Herbert Limited, of Coventry, has designed the new No. 7B combination turret lathe with roller-bearing headstock. The lathe has been introduced for the rapid machining of castings, forgings, or blanks sawn from the bar, which can be held in a 12-in. hand- or air-operated chuck. If the machine is equipped with a Herbert Dead-Length bar chuck, it will accommodate bar work of any length within its capacity up to 2 in. dia., or similar work of limited lengths up to 2½ in. dia.

The bed of the machine is of large section, with diagonal bracing extending to the end of the bed under the turret slide. Extra rigidity is provided by the parabolic form of the casting between the two legs. All important surfaces in the machine which are liable to wear are hardened by the company's Flamard process to 478/555 Brinell.

Speed Selection Mechanism

Eight speeds, forward and reverse, are provided, selected by a dial-change headstock. Any one of the four pairs of speeds is selected by rotating the dial to the appropriate position, after which slow or fast operation is obtained by moving a lever above the dial. This change can be made while the spindle is running. The starting and reversing lever on top of the headstock must be moved to the neutral position before the dial can be operated. This movement of the starting lever automatically applies a brake which stops the spindle.

The headstock is lubricated automatically with oil which circulates continuously through magnetic and gauze filters. An indicator is provided on top of the headstock to show that the pump is working correctly. When the headstock is driven by a 7½-h.p. constant-speed motor, eight speeds from 40 to 1,000 r.p.m. are available.

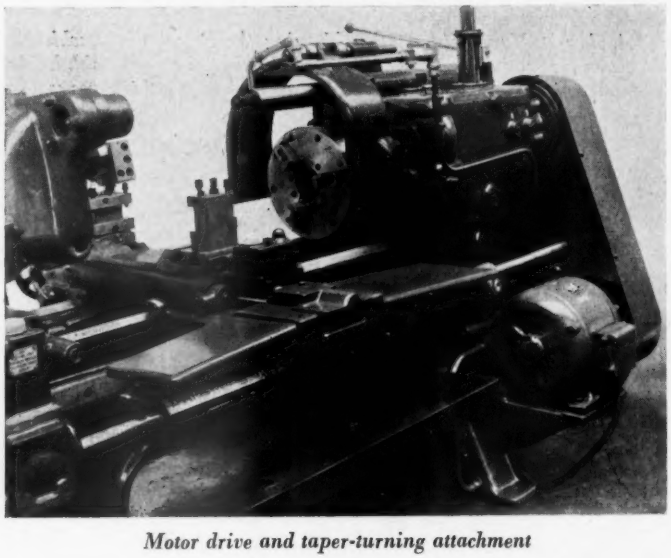
This range can be extended by the use of a two-speed motor, when the lower speed limit extends to 20 r.p.m., making the machine suitable for turning and screwing high-tensile steel. A panel with push-buttons at the headstock end of the bed provides for control of the driving motor. Also on the panel are a pump motor control, and a red warning light to minimise the risk of the machine being left with the motor running for unnecessarily long periods.

Both types of motor will give a power output 50 per cent. greater than is available usually on machines of similar capacity, so that advantage may be taken of negative rake Ardoloy tools at appropriate speeds.

Electrical Equipment

The electrical equipment is designed for operation on a 3-phase 50-cycle supply at 200-550 volts, or on 400-500 volts d.c. supplies. All electrical control gear for a.c. supply is housed in the left-hand cabinet leg. A separate cabinet is supplied for d.c. equipment. Six automatic reversible feeds from 40 to 480 cuts per inch are provided to the sliding and surfacing motions of the saddle, and to the longitudinal motions of the turret slide.

Engagement of the quick power traverse automatically disengages the feed. This mechanism is uncoupled automatically when the turret slide reaches the end of the bed. A taper-turning attachment can be supplied to order, suitable for internal and external tapers up to 12 in. long with 24 deg. included angle, and up to 6½ in. long with 30 deg. included angle. Taper threads can be cut when the taper attachment is used in conjunction with the chasing mechanism. To take advantage of the high cutting speeds used with Ardoloy tools, the addition of the Herbert patent Chipstream Boxtool is recommended. The Chipstream Boxtool is of particular advantage when turning nickel-chrome and stainless steel.



Motor drive and taper-turning attachment

SHEFFIELD UNIVERSITY EXTENSIONS.—A greatly enlarged Department of Engineering and a new foundry and other extensions to the Department of Metallurgy are included in a £6,000,000 improvements scheme for Sheffield University. These improvements form part of a ten-year plan which aims eventually at accommodating four times as many students as in pre-war years. Recently, it was announced that the University Development Committee had received donations amounting to £52,849, and of this substantial preliminary sum, one firm, Thos. W. Ward Limited, Albion Works, Sheffield, has contributed £5,000.

SURPLUS MACHINE TOOLS FOR SALE.—A Ministry of Supply campaign is being conducted to bring to the notice of small industrialists that 40,000 surplus machine tools are available for purchase. The Ministry states that it has already disposed of over 110,000 machine tools for £28,000,000, and that, although large users have had their needs met, many small ones still require machine tools. Beginning in April, classified and display advertisements will be published in 1,500 London and provincial daily and weekly newspapers, and posters will be exhibited at various centres. Disposal centres, at which details of the machine tools available may be seen, have been set up at Birmingham; Bristol; Cardiff; Glasgow; Leeds; London; Manchester; Belfast; Burghfield, near Reading; Thorp Arch, near Boston Spa, Yorkshire; Erith, Kent; Summerfield, near Kidderminster; Yeading, Middlesex; Elston, Bedfordshire; Capenhurst, near Chester; Theale, near Reading; Featherstone, near Wolverhampton; and Allesley, Coventry.

Reclamation of Worn Parts by Metallising

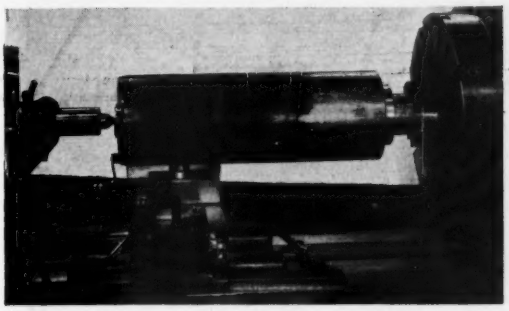
New equipment at L.P.T.B. railway overhaul works

METALLISING plant installed recently at the Acton overhaul works of the London Passenger Transport Board is now in use for renewing worn metal parts. The adoption of this process, the equipment for which was supplied by the Metallising Equipment Company, Chobham, Surrey, means that numbers of components can be reclaimed which otherwise would be fit only for scrap.

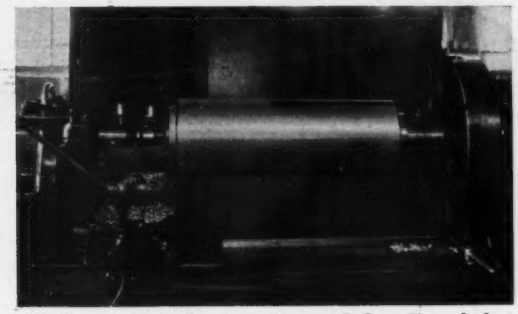
In the process, successive stages of which are shown in the accompanying illustrations, molten metal is sprayed on a prepared surface, and the process is suitable both for the reclamation of worn parts and for the application of a protective metal coating.

The first photograph in the series below shows a worn shaft mounted in a lathe for preliminary turning of the cylindrical surface to be treated. The surface of the shaft is then grooved and knurled as shown in the second illustration in order to produce a holding ground for the metal to be sprayed. The deposition of the metal is carried out by means of a metallising gun, in which the metal is fed in the form of wire into the tip of an oxy-acetylene flame which melts it, and an air blast atomises and projects the molten metal at high velocity on to the rotating shaft.

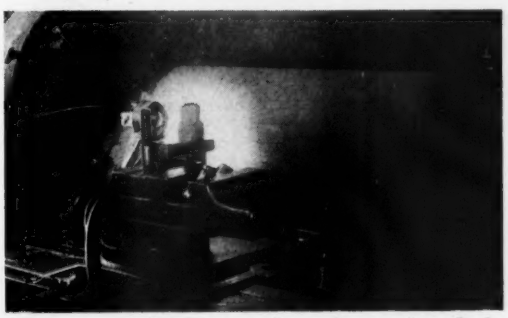
The spraying is done first at an angle of 45 deg. in order to fill the under-cuts of the grooves, and completed at 90 deg., as shown in the third photograph. The final operation is the finishing of the sprayed surface by turning or grinding, the result of which is shown in the last photograph.



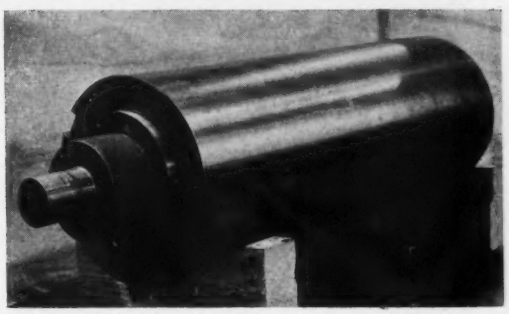
Worn shaft shown in position for preliminary turning in the lathe



Shaft prepared by grooving and knurling before deposition of metal



Molten metal being sprayed on the rotating shaft; showing wire entering metallising gun



The completed job after the final operation of finishing the sprayed surface by turning or grinding

L.M.S.R. to Experiment with Main-Line Diesel-Electrics

(*Concluded from page* 302)

coal; for example, a main-line diesel-electric unit of 3,200 h.p., on its annual mileage would save, it is estimated, some 2,500 tons of coal a year.

These experiments represent the next step in the development of the diesel locomotive in this country, pioneered by the L.M.S.R. fifteen years ago. After four years' trial with various types of diesel shunting locomotives, a design was evolved in 1936 which became the standard and which was to prove invaluable during the war, not only for use in this country, but also abroad. This standard shunting type is a 350 h.p. diesel-electric unit; the diesel engine and electric transmission were manufactured by the English Electric Co. Ltd.

The L.M.S.R. now has 40 of these locomotives in service (a further 42 were built during the war for the use of the British Armies in Africa and the Near East), and 10 are under construction. The building of a further 100 was deferred during the war. The consumption of oil per locomotive a year is 50 tons against a coal consumption of 600 tons. When those under construction are completed, the aggregate reduction in coal consumption is put at 30,000 tons a year.

The data which have been obtained of the performance of these locomotives show clearly that they have proved strikingly successful where continuous 24-hour operation is required in important traffic yards, such as Toton, Willesden, Crewe, Carlisle, and Liverpool (Speke). It is this continuous service which enables the high initial cost to be offset. The L.M.S.R. plans to build 100 more of these shunting units in the next six years.

WOMEN FOR SIGNAL DUTIES.—There is likely to be a resumption of the recruiting of women for signal duties owing to lack of male applicants. Taking into account the introduction of the 40-hour week, one railway will require over 900 more signalmen and 700 shunters. Normal sources of recruitment have been reduced owing to the calling up of young men for the Forces.

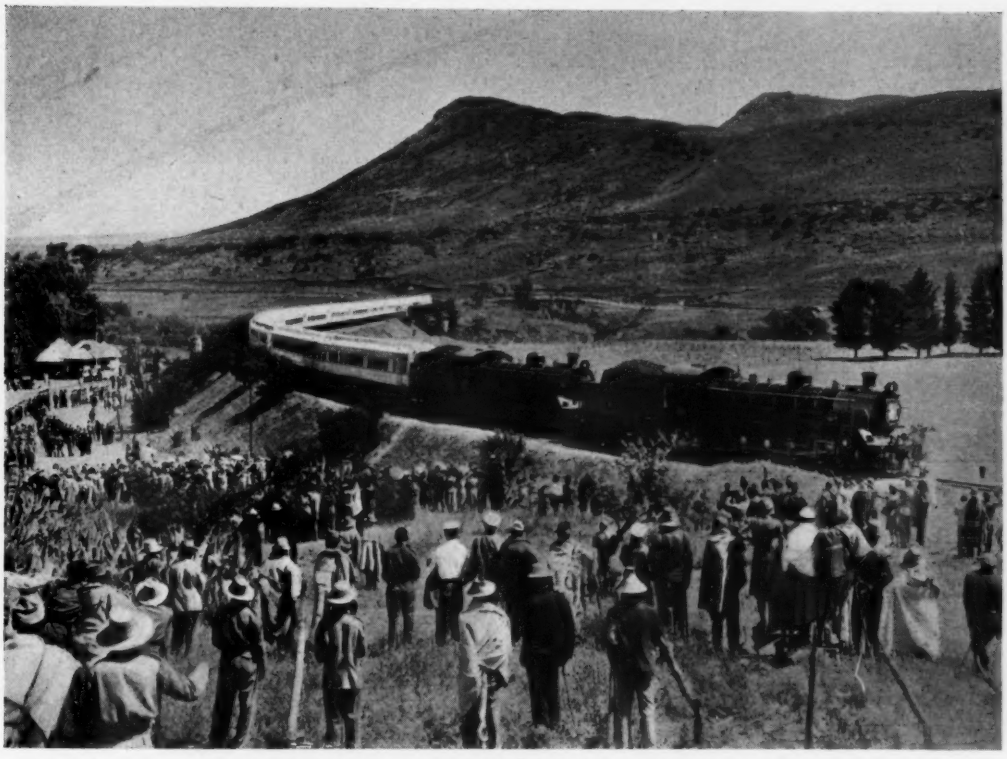
DORMAN LONG & CO. LTD.—At the annual general meeting of the company, the Chairman, Lord Greenwood, described the setting up of the Steel Control Board, with clearly defined duties which did not include advice to the Government on how to carry out a policy of public ownership, as a commonsense solution of the difficulties created by the Government's original announcement. Uncertainties during the past year, the Chairman continued, had prevented as rapid progress as had been hoped with the major schemes of development included in the industry's five-year plan. This was the case with the Dorman Long £8 million project for a new steelworks and universal beam mill. Some preliminary work had been done, but greater progress might have been made if uncertainty regarding future ownership had not arisen. In reference to coal, Lord Greenwood declared that any failure to ensure the coal necessary to sustain operations at the coke ovens and furnaces, would mean a fall in steel production and spells of enforced idleness for the men employed on the plants.

Flooded Railway Lines and Stations

Goods wagons in a railway siding at Bedford, L.M.S.R., when the Great Ouse burst its banks at the height of the floods last week

Vehicles near Tottenham Station, on the L.N.E.R. Liverpool Street to Cambridge main line, during the floods in the valley of the River Lea

Scenes on the Royal Tour of South Africa

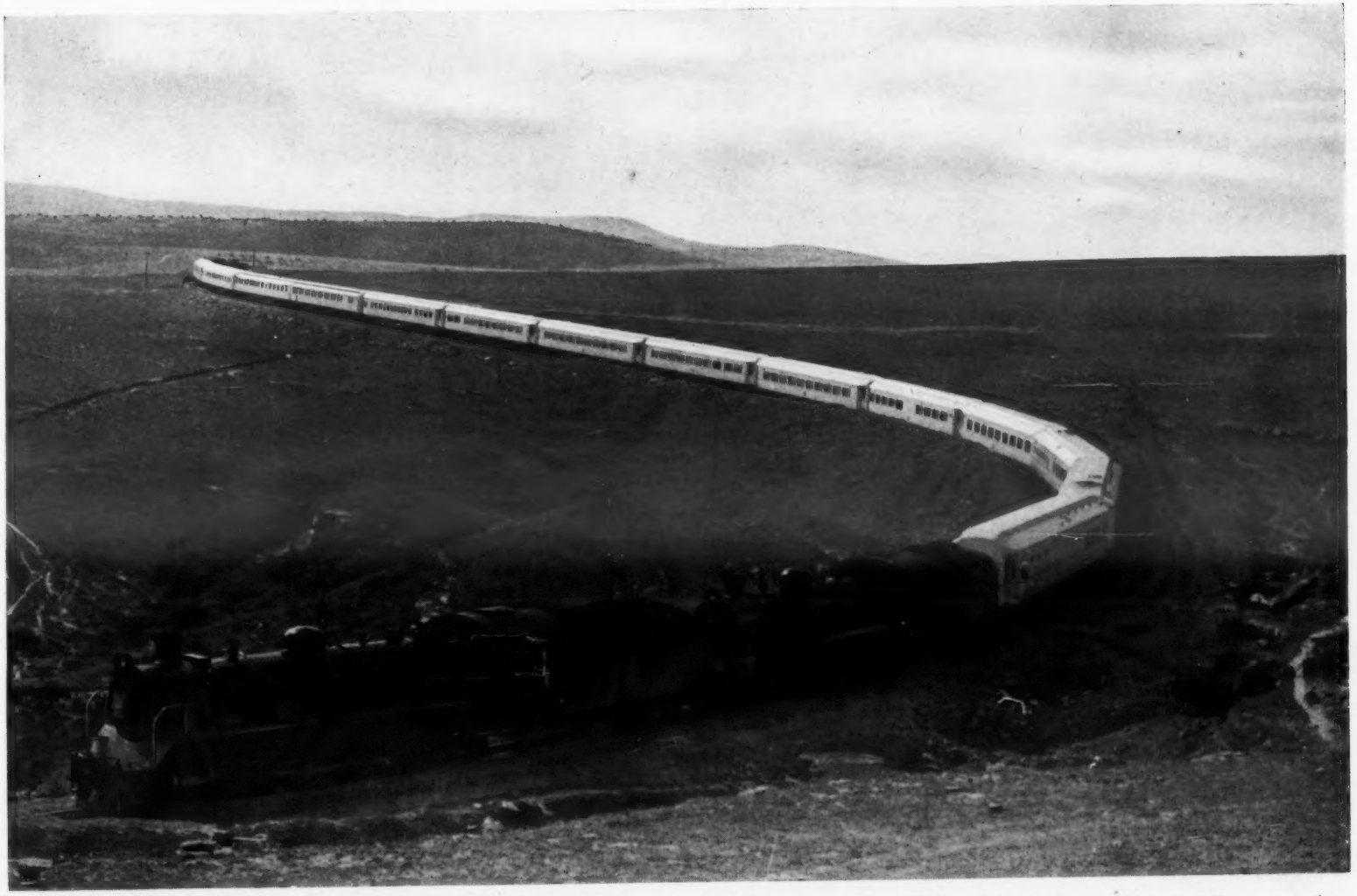


A wayside halt in the valleys of the Basutoland border

The Princesses leaving Beyer-Garratt locomotive after their footplate trip. Mr. F. C. Sturrock, Minister of Transport, is behind Princess Elizabeth

The Royal Train near Umtata, terminus of a branch line from East London which winds through picturesque and hilly country at altitudes of some 2,000 ft.

The South African Royal Train near Umtata



At the point shown above, between Umtata and Idutywa, the Royal Train is traversing high ground over 2,000 ft. above sea level. After spending a morning in Umtata, the Royal party travelled to Bloemfontein, making short intermediate halts at Queenstown and Aliwal North

RAILWAY NEWS SECTION

PERSONAL

Mr. G. R. Fairhead, General Freight Traffic Manager, Canadian National Railways, has retired, and Mr. John Pullen, Head of the Foreign Freight Traffic Department, has been appointed General Freight Traffic Manager.

Viscount Bridgeman (a Director of the Great Western of Brazil Railway Co. Ltd.) has been appointed a Deputy-Lieutenant for Shropshire.

Mr. B. W. Roberts, O.B.E., General Purchasing Agent, Canadian Pacific Railway, who, as recorded in our March 21 issue, has been appointed Vice-President, Purchases & Stores, joined the Treasury Department, C.P.R., in 1907, and transferred to the Purchasing Department in 1908. He was promoted Purchasing Agent, Calgary, in 1917, and went to headquarters at Montreal as Assistant General Purchasing Agent in 1923. He was appointed General Purchasing Agent in 1928. During the recent war, Mr. Roberts was Director of Purchases in Canada for the N.A.A.F.I. He was made an O.B.E. last year in the Canadian Dominion Day Honours.

Mr. B. W. Roberts

Appointed Vice-President, Purchases & Stores, Canadian Pacific Railway

It is notified in a recent Supplement to *The London Gazette*, under the heading of Supplementary Reserve of Officers: Royal Engineers, that Major H. F. Sanderson relinquishes his commission, March 15, 1947, and is granted the honorary rank of Lt.-Colonel. Colonel Sanderson is Principal of the L.N.E.R. All-Line Commercial School.

At the recent annual general meeting of the Institution of Railway Signal Engineers the result of the ballot for election to the Council was made known. With those remaining in office, the Council for 1947 is composed as follows:—President, Mr. F. L. Castle (General Manager, Siemens & General Electric Railway Signal Co. Ltd.); Vice-Presidents, Mr. A. Moss (Assistant to Engineer (Signals), Southern Area, L.N.E.R.) and Mr. R. Dell (Signal Engineer, L.P.T.B.); ordinary Members of Council, Messrs. T. Austin, E. G. Brentnall, W. H. Challis, W. J. Claridge, C. G. Derbyshire, J. H. Fraser, T. Guest, F. Horler, W. J. Howes, J. C. Kubale, F. Mann, N. Marshall, A. L. Mills, R. A. Powell, C. F. D. Venning and S. Williams.

SOUTH AFRICAN RAILWAYS & HARBOURS

Mr. W. E. Purvis, Chief Superintendent (Parliamentary), has been appointed Understudy to the Chief Financial Manager.

We regret to record the death on March 15 of Dr. William Salisbury Sharpe, M.D., F.R.C.S., M.R.C.P., T.D., late Consulting Surgeon to the Great Western Railway.

Mr. S. E. Clark

Appointed Assistant Docks & Marine Manager, Southern Railway

Mr. S. E. Clark, Deputy Secretary, Southern Railway Company, who, as recorded in our March 7 issue, has been appointed Assistant Docks & Marine Manager, commenced his career with the S.E.C.R., and, after experience in various departments, entered the Secretary's Office. He continued in the Secretary's Department after the formation of the Southern Railway, and passed through all sections; during that period also he was in close contact with, and gained wide knowledge of, the activities of all departments of the railway. In 1936 Mr. Clark was selected to assist in the confidential and special matters connected with the department. He was appointed Personal Assistant to the Secretary in 1939. In 1944 he was appointed Acting Secretary of the company, and, in 1946, Deputy Secretary, on the return from national service of the Secretary, Brigadier L. F. S. Dawes. Mr. Clark has taken a keen interest in many branches of railway activities, official and unofficial. He is a Brunel Medallist (special distinction in Law of Carriage and Operating Economics), and has sponsored, or assisted in the management of, many of the staff clubs and societies.

A portrait and biography of Mr. F. J. Wymer, Assistant Docks & Marine Manager, Southern Railway, who has now been appointed Assistant to Traffic Manager for Special Purposes, appeared in our October 26, 1945, issue.

Mr. C. S. McLeod, M.Inst.T., Assistant Divisional General Manager, Scottish Area, L.N.E.R., who, as recorded in our February 7 issue, has been appointed Principal Assistant (Staff), Chief General Manager's Office, joined the L.N.E.R. in 1927 as a traffic apprentice, and, after a period of training in various departments, was engaged on staff work in the Chief General Manager's Office from 1932 to 1935. In the latter year he was appointed Chief Assistant to the District Goods & Passenger Manager, Dundee, and two years later returned to headquarters for special duties in connection with the unification of the L.N.E.R. superannuation funds. In 1938 he was appointed Assistant to the Goods Manager, Scottish Area, and he became successively Assistant Goods Manager for that area, and, from 1942, Acting Goods Manager. He was appointed Assistant Divisional General Manager, Scottish Area, in 1945. Mr. McLeod was Secretary of the Scottish Section of the Institute of Transport from 1945 until he took up his present appointment.

Mr. C. S. McLeod

Appointed Principal Assistant (Staff), Chief General Manager's Office, L.N.E.R.

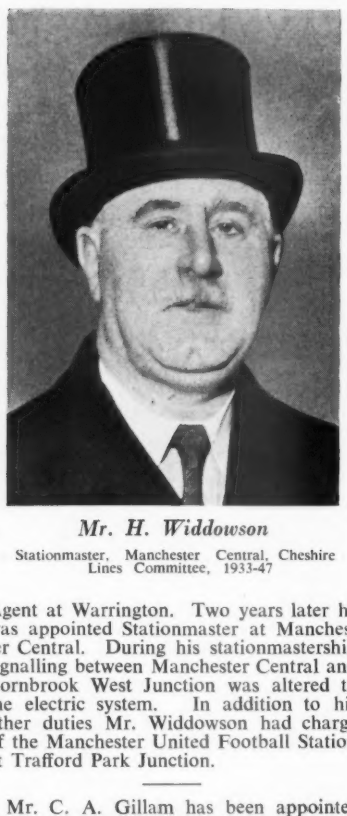
We regret to record the death on March 15 of Mr. George D. Slater, General Manager & Secretary of the Vacuum Brake Co. Ltd. He had served the company for nearly 50 years.

We regret to record the death on March 12, in his 87th year, of Mr. Henry Spurgeon, Assistant London Goods Superintendent, London & South Western Railway, and afterwards Southern Railway, until his retirement in 1924.

We regret to record the death on February 26 of Mr. L. M. G. Ferreira, formerly Engineer in charge of the Railway Signalling Department of Siemens Bros. & Co. Ltd. He was originally in the Telegraph Department, North London Railway. During his service with Siemens Brothers he was associated with the development of all-electric power signalling on the Midland and the Great Western Railways, including the installation at Birmingham (Snow Hill).

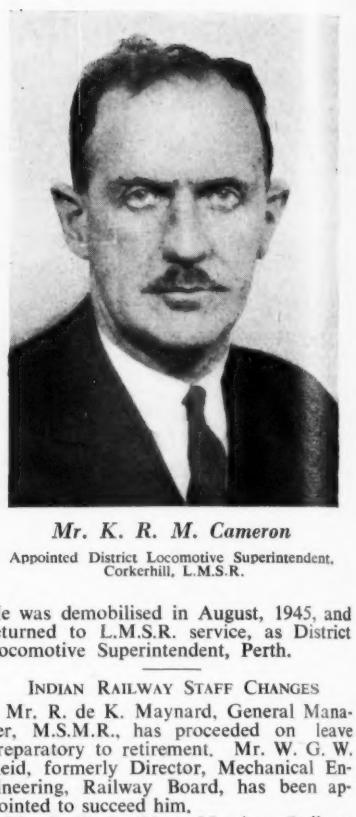
Mr. G. C. Gold

Appointed Mechanical Engineer, Stratford, L.N.E.R.



Mr. H. Widdowson

Stationmaster, Manchester Central, Cheshire Lines Committee, 1933-47



Mr. K. R. M. Cameron

Appointed District Locomotive Superintendent, Corkerhill, L.M.S.R.

Mr. G. C. Gold, A.M.I.Mech.E., M.I.Loco.E., Mechanical Engineer, Gorton, L.N.E.R., who, as recorded in our February 7 issue, has been appointed Mechanical Engineer, Stratford, was educated at Whitgift School, Croydon, and commenced his railway career in 1920 as a premium apprentice under the late Sir Nigel Gresley at the Great Northern Railway Works, Doncaster. Four years later he went to Kings Cross Locomotive Depot for running-shed experience. In 1926 he was appointed Locomotive Inspector at York shed, and subsequently became Shed Foreman at Northallerton Locomotive Depot & Percy Main. He later was selected for special training in the Operating and Goods Commercial Departments and was appointed Stationmaster at Whitby (Town & Westcliff Stations) with additional charge of the locomotive depot. In 1936 Mr. Gold was transferred to Darlington as Assistant District Locomotive Superintendent. He was appointed Acting District Locomotive Superintendent in 1940, and Assistant Works Manager, North Road Works, Darlington, in 1942, and was made Works Manager during the same year. He was appointed Mechanical Engineer, Gorton, in August, 1945.

Mr. H. Widdowson, who has been Stationmaster of the Cheshire Lines Committee's Central Station, Manchester, since 1933, is retiring on March 31. During his 52 years' service he has worked under eight General Managers. He is the youngest of four brothers, all living and all employed by the Cheshire Lines or London & North Eastern Railway, and their total railway service is well over 200 years. Born in 1882, Mr. Widdowson commenced his railway service with the Cheshire Lines in 1895 as a junior telegraph clerk at Godley Junction. During his stay there he saw the transition of train alarm from the outside cord arrangement with a large bell on the engine tender and in the guard's van to the present vacuum arrangement. In 1902 he was transferred to Liverpool Central Station as parcels clerk, and subsequent appointments were Stationmasterships at Lostock Gralam and Irlam. In 1919 he was appointed Assistant Stationmaster at Manchester Central, then in 1932, Stationmaster & Goods Agent at Warrington. Two years later he was appointed Stationmaster at Manchester Central. During his stationmastership signalling between Manchester Central and Cornbrook West Junction was altered to the electric system. In addition to his other duties Mr. Widdowson had charge of the Manchester United Football Station at Trafford Park Junction.

Mr. C. A. Gillam has been appointed Chairman of the White Pass & Yukon Railway Co. Ltd., in succession to the late Sir George C. C. Hamilton.

We regret to record the death on March 20, at the age of 70, of Sir Harry Greer, D.L., Chairman of the Scottish Machine Tool Corporation Limited.

Mr. K. R. M. Cameron, B.Sc., M.I.Loco.E., District Locomotive Superintendent, Perth, L.M.S.R., who, as recorded in our issue of December 6 last, has been appointed District Locomotive Superintendent, Corkerhill, was educated at Hillhead High School and the Royal Technical College, Glasgow. He graduated B.Sc. at Glasgow University with first class honours. Mr. Cameron commenced an apprenticeship with Mavor & Coulson Limited, and then joined the L.M.S.R. at St. Rollox. He was appointed Assistant Foreman, Locomotive Erecting Shop, Crewe, in 1931, and in 1934 became Technical Assistant in charge of Central Order Office, Derby. He returned to the Northern Division in 1935 as Maintenance Assistant to Superintendent of Motive Power, and in 1939 took charge of the Motive Power Depot at Carstairs. Mr. Cameron was mobilised as an officer in the R.E. (S.R.) in August, 1939, and appointed Electrical & Mechanical Officer for the Shoeburyness Experimental Establishment. He proceeded overseas in 1941. In 1942 he was promoted Major and given command of the military railway workshops at Jaffa, Palestine. He was promoted Lt.-Colonel in 1944, and placed in command of No. 2 Railway Workshop Group, R.E., covering military railway shops in Egypt and Palestine, and in May, 1945, became Assistant Director of Transportation (Mechanical), Railways & Docks. He was demobilised in August, 1945, and returned to L.M.S.R. service, as District Locomotive Superintendent, Perth.

Indian Railway Staff Changes

Mr. R. de K. Maynard, General Manager, M.S.M.R., has proceeded on leave preparatory to retirement. Mr. W. G. W. Reid, formerly Director, Mechanical Engineering, Railway Board, has been appointed to succeed him.

Mr. S. E. L. West, Member, Railway Board, has been granted 28 months' leave preparatory to retirement, as from September 23 last.

Mr. G. A. Rowlerson, General Manager, O.T.R., on return from leave, has been appointed to officiate as Member, Transportation, Railway Board.

Mr. F. C. Badhwar has been appointed to officiate as General Manager, O.T.R., as from January 15.

Mr. R. Proudlock, Director, Traffic (General), Railway Board, has been granted 26 months' leave preparatory to retirement as from October 1 last.

Mr. A. A. Brown, on relinquishing his duties as Director, Rail-Road Co-ordination, Railway Board, assumed charge of the duties of Director, Traffic (General), in place of Mr. Proudlock, on October 1 last.

On termination of his appointment as Officer on Special Duty, Railway Board, Mr. A. C. Turner resumed charge of his duties as Financial Commissioner of Railways from November 20.

On relinquishing charge as Officiating Financial Commissioner of Railways, Mr. I. S. Puri was appointed to officiate as Additional Financial Commissioner of Railways from November 20.

Mr. K. N. Ranga Rao has been appointed to officiate as Chief Electrical Engineer, E.I.R., as from December 12.

Mr. G. M. Vibart, Overseas Representative, Locomotive Manufacturers' Association, has returned to England from his recent visit to India.

We regret to record the death on March 21, at the age of 74, of Sir Joseph Barcroft, F.R.S., the eminent physiologist, who was a member of the L.M.S.R. Advisory Committee on Scientific Research.

Midland Railway Co. of Western Australia Ltd.

The ordinary general meeting of the Midland Railway Co. of Western Australia Ltd. was held on March 19 at Winchester House, Old Broad Street, London, E.C. Mr. Robert W. Adeane, O.B.E., the Chairman, presided.

The Secretary, Mr. John S. Lewis, having read the notice convening the meeting and the report of the auditors,

The Chairman said: Ladies and gentlemen. Since addressing you in April last year, I have made a visit to your property in Western Australia. I propose in the first part of my speech to deal purely with the results of the year, and then, in the second part, to tell you what I can of your property, which I have so recently seen, and to deal at the same time with your board's policy for the future, and with prospects.

As you will see from the director's report, the gross earnings for the year ended June 30, 1946, are down by £A.11,000, which is due to a slight drop in passenger and freight traffic. This is probably attributable to the final drying up of traffic for the Armed Forces. Expenses are up by what is, I think you will agree, the moderate figure of £A.6,000. Of this, over half is accounted for by gratuities paid to retiring employees.

The net result, after providing for renewals at £A.63,000, first mortgage debenture stock interest, loss on exchange, and other charges, totalling £14,248, is an adverse balance of £61. This result unfortunately renders any distribution for the second mortgage cumulative income debentures out of the question. Arrears on these debentures, which as you know are entitled to 5 per cent. if earned, and are cumulative up to 4 per cent., amount now to £35,541.

The ratio of working expenses to gross receipts this year is 66·25 per cent., as compared with 60 per cent. last year, and 48 per cent. the year before. It is still a reasonable ratio which, in my view, indicates that our railway is economically run, but lacks a sufficient volume of traffic.

Visit to Company's Properties

During November and December last year, I had the opportunity, and it was a very pleasant one, of paying a visit to Perth; of meeting Mr. Wise, the Premier of Western Australia, Mr. Jackson, our Local Director, Mr. Brisbane, our Manager, as well as all our workers and staff. I also met the Commissioner of the Western Australian State Railways, as well as some of his management.

I took the opportunity during my visit, not only to travel over the full length of our lines, but to make the parallel journey by road, coming into personal contact with farmers and members of the various roads boards. In addition, I visited the Mungedar Pastoral Company's properties at Mingenew and Moora. If you will turn to the balance-sheet, you will see on the right-hand side—investments in transport and pastoral undertakings in Australia, £38,250. These comprise our holdings in Beam Transport and Mungedar Pastoral Company, to both of which holdings I will refer later.

I was immensely struck, and this impression was uniform wherever I went, with the great loyalty and affection of all Western Australians for England, and also with the high regard which was evident for our local management and employees, as well as the friendly attitude towards our railway, which is regarded as having done great pioneer service to the State in the past, and to give a fair service—I wish it could be a better one—under present conditions. It was particularly gratifying to find that such friendly relations existed between our railway and the State Railways.

Difficulties

In view of these good relations, you may think it strange that our results are not better, but it must be borne in mind that we are working under many disadvantages. To recite a few; our line terminates short of Perth and short of Geraldton, thus rendering traffic solicitation at both ends difficult, and necessitating a rather lengthy double hand-over with the State railways on each through trip.

The country through which we run can be described roughly as follows:—From Midland Junction to Gingin—about 40 miles—is uncleared forest, including a stretch from Upper Swan to Bullsbrook, a fertile wine-growing district, the traffic from which goes to Perth by road, due to the short haul. This is a poor traffic zone. The next section from Gingin to Watheroo is a fair area from our point of view, producing sheep, wheat, and some cattle, but the land is very broken and interspersed with inferior areas, such as sandplain. Watheroo to Coorow is sandplain, producing very little, and from Carnamah right through to Mingenew the quality of the land steadily improves, and around Mingenew is a really good sheep and wheat belt.

At Mingenew the railway turns west and the line runs through an area of decreasing fertility to Dongarra and Walkaway. Generally, Western Australia, due to its limited rainfall with no summer rains, combined with the large areas of sandplain, does not carry, and will not carry for many years, a population sufficiently large to produce a heavy traffic.

The stations and buildings, including workshops, I was pleased to find in a fair state of repair, but as I have told you before, the rail position is bad, and before I left I instituted a relaying programme. This, I am afraid, will be a heavy strain on our profits and cash resources, but I am convinced that it is necessary in the interests of all classes of stockholders, whether the railway's ownership remains as it is, or if at some future date ownership should change.

We are indebted to Mr. Jackson and Mr. Brisbane for the manner in which they have patiently carried on during the anxious war years, and I am glad to say that, although it has been the intention of both Mr. Jackson and Mr. Brisbane to retire, I managed during my visit to persuade them to stay on. To get the advantages of more authoritative management on the spot, a local board has been formed, with Mr. Brisbane as Chairman, and Mr. Jackson as a member of the board. Mr. Holmes, who is a successful farmer with a station at Mingenew, has consented to join the local board. He is Chairman of the Mingenew Roads Board, and we are very glad to have the agriculturists in our zone represented on the management.

As I have explained, traffic in normal times is not heavy, and I am satisfied that we are at least receiving our fair share. The main roads in Western Australia—the one from Perth to Geraldton runs approximately parallel with our line—are so good that passenger and parcels traffic must be lost to the roads unless the railway system is able to offer fast diesel railcar service, or some similar fast, cool, and comfortable facilities. This we are unable to do.

We have accordingly obtained a franchise and put buses on to the road. I can assure you that the Midland Railway Road Service is very popular, and it pays. This road service has twofold advantages. It offers a better service, for which the railway gets credit, and it protects our traffic from being taken away by newcomers who have done nothing to develop the zone. It is our intention to develop a parcels service, and a franchise has been granted to us. Unfortunately, we are handicapped by the delay in delivery of vehicles.

The company has 602,000 acres left, but most of our best land has been sold; and what remains is fairly widely scattered. We have to pay taxes on all our land, and your board has been considering the possibility of bulk disposal should an opportunity arise.

Investments in Australia

I now come back to our investments in Australia. 1. Beam Transport.—We hold 15,750 shares, amounting to 25 per cent. of the capital in Beam Transport Company, which operates in and around Perth. It gives a good and efficient service, and has paid us dividends at about 8 per cent. per annum. Mr. Brisbane is on the Board, and plays a leading role. The company is developing, and has recently issued new shares at par, which were offered to shareholders, and we were pleased to take up our participation, namely, 13,000 shares.

2. Mungedar Pastoral Company.—This was formed to open up the company's zone. In this company we hold 22,500 shares, which is 46 per cent. of the company's capital. The company owns two properties, both of which I visited. Irwin River Station is a wheat proposition near Mingenew. The station has been showing a small profit, but I was not satisfied with its progress. It is too far from Perth for us to supervise. Before I left I ordered a valuation of this property to be made, and we are considering the possibility of selling, or, alternatively, turning it into a share-farming proposition, or of splitting it up for settlers.

The other property is the Mungedar Station, about 30 miles west of Moora. A lot of money has been put into this station, and it is split up into 42 paddocks, surrounded by rabbit wire. It needs more money to develop and work the property to its fullest extent, and should all or part of the Irwin River be sold, I think it would pay to develop Mungedar further. While I was in Perth, certain changes in management were made, which I hope will prove beneficial.

Our staff has been consistently hard working and loyal, and I was pleased to authorise a moderate increase in salary, which I considered was very well deserved. Employees who are paid on scale rates are relatively better paid than the staff.

Prospects

For the current year I feel I cannot hold out any hope that we shall do better than last year; in fact, for some years to come we must expect increases in expenses, which can only be countered by increase in the volume of traffic. This I am sure will come in Western Australia, but I fear it will not come quickly, apart from a slight acceleration due to returned soldier movements.

Ultimately, it seems logical that our railway will become part of the Western Australia State Railway system, though unlike in this country, there is no urge to nationalise for nationalisation sake, at any rate in Western Australia. One thing is certain, that is, whatever the future holds for us, continuing as an independent system, or becoming part of the State-owned railway, at this juncture it will pay us to maintain our line and improve where we can.

The Chairman moved the adoption of the report and accounts.

Sir Norman G. Touche, Bt., seconded the resolution, and it was carried unanimously.

The auditors, Messrs. Deloitte Plender Griffiths & Co., were reappointed, and the proceedings terminated with a hearty vote of thanks to the Chairman, directors, and staff in Australia and London.

Belfast & County Down Railway Company

The annual meeting of the Belfast & County Down Railway Company was held in Belfast on February 27, Mr. James Hurst, Chairman of the company, presiding.

The Chairman, in moving the adoption of the report and accounts, described the transport problem as now "almost desperate," and said that only by means of a merger could an efficient and economic transport service be established in the North.

Although some substantial economies had been made, they fell far short of what was necessary if the business of the company was to be carried on. Only the Bangor branch line showed any appreciable margin over working costs. The Belfast-Comber line barely covered its expenses, and the remainder of the railway was being worked at a very great loss, despite the exercise of the utmost economy.

They had informed the Ministry of Transport that they would have no alternative but to close a substantial portion of the line, with a reduction in staff of 400 men, unless the proposed public transport merger was proceeded with immediately. Meanwhile, the expense of working the railway would continue to exceed its revenue. Such a state of affairs could not be allowed to continue. The merger was the only course open.

Cessation of military traffic and of activities connected with the emergency, and increasing competition from road transport, had brought a serious fall in the revenue of the company.

Gross railway receipts declined by £123,391, or 24 per cent., but expenditure had fallen only by £43,599, or 9 per cent. Decreased passenger traffic, as a result of the small holiday and excursion travel caused by the bad summer, accounted for £98,826 of the fall in gross receipts. There was a reduction of £19,635, or 32 per cent., in freight receipts.

Financial Position

There was a deficiency of £22,875 in total net income. After meeting interest, rentals, fixed charges, and dividends on guaranteed shares, the results were such as to preclude payment of any dividends on the other stocks of the company or leave even a small balance for carrying forward.

With reference to labour costs, Mr. Hurst emphasised that these had risen by 60 per cent. since 1939, while the cost of materials and stores was 82 per cent. higher.

Passenger fares had been increased correspondingly by only 25 per cent., and goods rates by 37½ per cent. The company could function economically only while an adequate volume of traffic was being carried, as was the case during the war, and it was obvious that the simple remedies of increasing charges or securing greater support for the company's services from the public could not possibly be applied.

Merger Proposals

Replying to the company's statement that it would be necessary to close part of the line, the Ministry had replied that it would be more expedient to await fulfilment of the merger proposals, but there appeared to be very little hope of their being carried out for some time. Mr. Hurst said, in reply to a shareholder's question, that the Six-County Government was loth to take any action regarding the position of the railways until it saw what the British Government intended to do.

The report and accounts were adopted.

A New Buffet Bar at Liverpool Street

What is probably the first completely re-equipped railway buffet to be brought into use since the war, the new bar on No. 1 Platform at Liverpool Street Station, was opened officially on March 6 by Mr. O. H. Corble, Assistant General Manager, L.N.E.R. The decorations are in rose and cream, with wall panels and counter fronts in plaster, and the lighting is diffused.

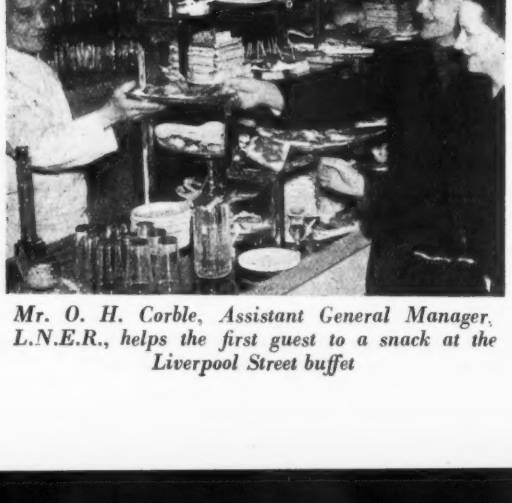
The tables and chairs are to L.N.E.R. specification, and were made by Preston Designs Limited, 22, Greville Place, London, N.W.6, in naturally-polished light alloy and plastic. This is a new type of plastic evolved during the war for making binoculars and metal objects for use in the Arctic circle to prevent burning of the skin by extreme cold. This material is the perfect insulator, never cold to the touch, and is attractive in appearance.

The tops of the tables are of laminated plastic sheets, and are reversible. The tops are removable without disturbing the central cruet unit. The central piece is a combined cruet set and ash tray, and there is an orifice recessed into the table which can be used to hold a flower beaker, menu holder, or table lamp.

New arrangements have been introduced for cutting and filling sandwiches and rolls fresh for each customer, and the food on display demonstrates the new standard of L.N.E.R. snack which is now obtainable in many L.N.E.R. main-line buffets, and which shortly will be universal on this line. Much of the credit for the new buffet goes to Mr. E. K. Portman-Dixon, Superintendent of Refreshment Room Services & Canteen Superintendent.

Nomenclature of Commercial Timbers.—A revised edition of the standards for the Nomenclature of Timbers has been published by the British Standards Institution. Previously, the nomenclature of softwoods was included in B.S. 589 and that of hardwoods in B.S. 881, issued as separate documents. These have now been combined in one publication, though retaining their separate B.S. numbers for the two parts. Copies of the publication may be obtained from the Institution, 28, Victoria Street, S.W.1, price 7s. 6d.

Opening of New Buffet Bar at Liverpool Street, L.N.E.R.



Mr. O. H. Corble, Assistant General Manager, L.N.E.R., helps the first guest to a snack at the Liverpool Street buffet

The new buffet is furnished with reversible-top tables, and chairs of naturally-polished light alloy and plastic (see article above)

The Transport Bill in Standing Committee

Discussion on the clauses dealing with road transport undertakings

When the Standing Committee of the House of Commons dealing with the Transport Bill met on March 18, consideration was given to clauses dealing with road transport undertakings to be acquired, and in an amendment proposed to Clause 41, Sir David Maxwell Fyfe (West Derby, Liverpool—C.) contended that, in the event of an operator having his business taken over, the onus of proving the case for nationalisation should rest on the Transport Commission.

An alternative Opposition amendment sought to place the onus on the undertaking involved in the transfer.

Mr. G. R. Strauss (Parliamentary Secretary to the Ministry of Transport) resisted the amendment on the ground that neither side in a case in dispute should be put in the position of plaintiff or defendant before the Tribunal decided the question.

Colonel A. Gomme-Duncan (Perth & Kinross—C.) pointed out that the Lord President of the Council had stated that the nationalisers should prove that nationalisation was desirable. It was now stated, however, that the point could not be proved, and he thought it time the Ministry should be perfectly clear on the issue.

The amendment was defeated by 21 votes to 13, and the first amendment only was voted on.

Compensation for Goods Vehicles

There were some heated exchanges on another Opposition amendment relating to compensation to be paid for goods vehicles to be taken over. The amendment sought to provide that, where a vehicle was purchased from the Government or any other person prior to November 27, 1946, when the Bill was first mentioned, and was not new then, the purchase price should, if greater than the cost of replacing the vehicle by a new vehicle of similar type, be substituted by the cost of such a purchase.

Mr. S. W. Digby (Dorset, Western—C.), moving the amendment, said that road hauliers who had maintained their vehicles particularly well would be heavily penalised. He had in mind a man who had 20 to 30 vehicles. Each vehicle had done over 200,000 miles and the compensation he would get would be very small. The vehicles, however, would cost a considerable amount to replace. The average life of a road haulage vehicle was seven years, and, therefore, a large number would be compensated for very badly.

Mr. G. R. Mitchison (Kettering—Lab.) suggested that Mr. Digby was proposing that the taxpayer should be saddled with the cost of bad bargaining.

Sir David Maxwell Fyfe said that it was a poor argument to say that the injustice was only a little one affecting a couple of thousand vehicles.

The amendment was forced to a division and was defeated by 24 votes to 14.

An amendment to clause 48 moved by Captain Peter Thorneycroft (Monmouth—C.) sought to increase compensation payable for loss of goodwill to road hauliers taken over.

Mr. G. R. Strauss said that in the view of the Government the compensation terms were generous.

On a division the amendment was defeated.

Sir George Harvie Watt (Richmond—C.) proposed another amendment to give road hauliers compensation calculated on a direct basis in relation to the net annual profit of their business. He said that at the moment the Bill provided only one method of valuation, and contended that what really mattered in such cases was the revenue-earning capacity of the business.

Mr. Strauss said that the Government in dealing with a large number of cases had had to make provision for compensation which was fair and equitable in all the circumstances.

When Clause 53 was reached on March 19, amendments designed to ease the restrictions on "A" and "B" licence holders were discussed, and the first amendment, submitted by Sir David Maxwell Fyfe, sought to include a provision that permits enabling goods to be carried above the 25 miles limit should be granted by Licensing Authorities, not by the Transport Commission.

Mr. G. R. Strauss said that the amendment would destroy the whole basis of the scheme, which empowered the Commission to operate the long-distance road haulage of the country efficiently. He did not expect the Commission would do haulage work if it could not do it as efficiently as it was done by existing hauliers.

The amendment was defeated.

Another amendment suggesting that the operators specified in the clause should be allowed to operate over a radius of 60 miles instead of 25 miles, was then submitted by Sir David Maxwell Fyfe, who pointed out that, as the Bill stood, a haulier in Liverpool would not be able to operate as far as Manchester.

Mr. Barnes contended that the Government was not inaugurating a new system of restrictions. It was nothing new in licensing arrangements for conditions to be attached to licences. The only difference that proposal represented was a mileage limitation, which was often attached to licences.

The amendment was defeated.

A further amendment which was submitted by Mr. S. Wingfield Digby attempted to increase the radius for short-distance hauliers living within ten miles of the coast to 40 miles. Under the 25 miles limit, said Mr. Digby, operators in those areas would have only half the operating area of hauliers operating from inland centres.

Mr. Barnes replied that it was impossible to have uniformity with regard to either population or traffic.

The amendment was defeated.

On March 20 there was a further discussion of one of the compensation clauses relating to short-distance hauliers, and Sir David Maxwell Fyfe moved an amendment to Clause 55, which proposed that no compensation should be payable to "A" and "B" licence holders in respect of cessation of business.

The amendment sought to delete this proposal and to ensure that compensation in respect of cessation of business should be payable.

Mr. G. R. Strauss contended that the compensation provisions were fair. He promised that the Government would examine the position to see whether the restrictions under the Bill would impose hardship in certain cases.

In view of this undertaking, Sir David Maxwell Fyfe withdrew his amendment.

The Committee next considered a motion in the name of the Minister of Transport which proposed that Clause 56, dealing with the restriction on the private carriage of goods under "C" licences, should be left out of the Bill.

Mr. Ernest Davies (Enfield—Lab.) said that he regretted having to differ from the Minister on his decision to drop the clauses dealing with "C" licences. He asked for an assurance that the Transport Commission would be protected from the ancilliary user, and from the transferring to "C" licence holders of traffic now carried by "A" and "B" licence holders.

Decision on "C" Licences

Mr. Alfred Barnes said that it was not possible for him to meet the request to re-introduce "C" licences in the Bill by means of a new clause or other provisions. It was his desire that the decision of the Government on the course it was pursuing should be supported by the committee.

Earlier, Major D. Renton (Huntingdon—Lib. Nat.) referred to the restrictions the Bill would impose on "A" and "B" licence holders carrying goods for hire and reward, and asked if the Minister of Transport had consulted the Milk Marketing Board on the application of the clause to the transport of milk?

Mr. Alfred Barnes said the matter had received serious consideration. He did not consider a case had been made out, however, for excluding perishable foods or milk from the clause.

Mr. C. W. H. Glossop (Howdenshire—C.) sought to amend Clause 67, to provide for the setting up of a Passenger Road Transport Tribunal, which the Transport Commission would consult, instead of consulting local authorities.

Mr. G. R. Strauss declared that the amendment would frustrate the whole of that part of the Bill which they were considering.

The amendment was defeated.

Questions in Parliament

Construction of Locomotives

Sir Ralph Glyn (Abingdon—C.) on January 27 asked the Minister of Supply how many locomotives of a gauge and type suitable for operating on British railways had been constructed in the shops of private locomotive builders from 1935 to the end of 1946.

Mr. J. Wilmot (Minister of Supply) in a written answer stated: Two thousand three hundred and seventy-seven.

Reduced Passenger Services

Mr. W. L. Wyatt (Birmingham, Aston—Lab.) on February 17 asked the Minister of Transport (1) if he would, during the present acute coal shortage, reduce the number of passenger services available to the number which had been available during 1944; and (2) if he would discontinue all night passenger trains during the present coal shortage.

Mr. Alfred Barnes (Minister of Transport): Passenger services have been under review since the beginning of December and substantial cuts have been made progressively since then, amounting to over 1,750 trains a day, saving 200,000 train-miles a week. These cuts have been made where they will give most help in the present difficulties. Indiscriminate action, such as the elimination of all night services, or a reversion to 1944 timetables, would cause much hardship and dislocation and would not necessarily give relief where it is needed. Further cuts are being made.

Lt.-Commander Gurney Braithwaite (Holderness—C.): Is the Minister aware that, as a result of the cuts already made, the public is suffering great inconvenience

and hardship on long journeys, and will he do his best to restore these trains at the earliest possible moment?

Mr. Barnes: I am very well aware of the inconvenience to the public. That is why it is essential that this matter should be handled carefully. It is a matter of prior claims, and I do not think anyone would dispute, at the present moment, that it is essential to get coal moving and industry re-established, which are more important than the comfort of passengers.

Lt.-Colonel Sir Thomas Moore (Ayr Burghs—C.): Does the Minister realise that, if the proposals contained in the second question were adopted, it would mean that Scottish members would be prevented from going up to their constituencies to explain the failure of the Government?

Mr. Barnes did not reply.

Locomotive Coal Stocks

Sir Ralph Glyn (Abingdon—C.) on February 17 asked the Minister of Transport what were the present locomotive coal stocks of the four main-line railway companies; and how many days' consumption those represented based on present requirements.

Mr. Alfred Barnes: As the answer contains a number of figures I will circulate it. Later, Mr. Barnes circulated the following figures:—

On February 8 the stocks of locomotive coal held by the main-line railway companies were:—

	Tons	Days' consumption
L.N.E.R.	85,824	6
L.M.S.R.	70,966	4
G.W.R.	21,140	3
Southern Railway ...	14,968	5

Railways' Wartime Wear and Tear

Sir Ralph Glyn (Abingdon—C.) on February 17 asked the Minister of Transport if he had received from the main-line railway companies an estimated claim under the control agreement for abnormal wear and tear of their assets from 1940-45 due to war conditions; what value was placed on the excessive use of permanent way and rolling stock; and whether that abnormal wear and tear had now been made good.

Mr. Alfred Barnes: The four main-line railway companies have made representations that their assets suffered abnormal wear and tear during the years 1941 to 1945, and have prepared assessments expressed at pre-war prices amounting to about £21 millions. The bases of calculation of these assessments, however, have not been accepted by the Government. Little has yet been done towards making good abnormal wear and tear, but considerable orders have been placed for new rolling stock.

Sir Ralph Glyn: Will the Minister say what prospect there is of the assistance of his colleague, the Minister of Supply, in getting this additional rolling stock?

Mr. Barnes: I am afraid I cannot say that in reply to a supplementary question.

Rolling Stock and Equipment Shortages

Sir Ralph Glyn (Abingdon—C.) on February 10 asked the Minister of Transport when he had been first aware of the serious position of the main-line railways in regard to shortages of locomotives, carriages, wagons, coal supplies and track sleepers, respectively, arising from causes beyond the control of the companies.

Mr. Alfred Barnes: The deterioration of railway rolling stock and reductions of railway stocks of track sleepers are the results of enforced deferment of maintenance and replacements during the war and since, and also the result of heavy wartime traffic.

The accumulation of those arrears was of course known at the time he took office, and was beginning to show its effects in varying degrees. During the winter of 1945-6 the condition of the wagon stock gave me particular cause for anxiety. Special steps were taken, and have been sustained, to expedite repairs, and large orders for new wagons of standard type were placed by my department. Deterioration of the locomotive stock became marked at a later date. Stocks of sleepers, already much below normal, fell sharply during last year due to unexpected failure of supplies.

The stocks of railway coal also had been reduced in common with stocks of all other users due to inability of production to keep pace with consumption. He had throughout kept in close touch with the situation.

Sir Ralph Glyn: Does the Minister agree those those factors have been beyond the control of railway executives and directors?

Mr. Barnes: I think that my reply, if it is carefully read, will show that they are the direct consequences of the war, and, of course, even since the war the railways have had no let-up.

Mr. W. J. Brown (Rugby—Ind.): Will the Minister tell us how many locomotives, and how many trucks, we have exported from this country since the end of the war?

Mr. Barnes: I think that question should be put down to the Ministry of Supply.

Viscount Hinchingbrooke (Dorset Southern—C.): Since it is the policy of the Government to spend part of the American loan on capital goods, will the Minister look into the possibility of placing orders for rolling stock in the United States?

There were cries of "Answer," but Mr. Barnes did not reply.

EXCHANGE VISITS OF "GOLDEN ARROW" AND "FLECHE D'OR" TRAIN CREWS.—Last summer an exchange visit took place between senior members of the "Golden Arrow" crews and their opposite numbers on the "Fleche d'Or." The object of this visit was to show the men of each railway some of the features on the other side of the Channel, and to interest them in the complete journey. This arrangement was much appreciated, and, as a result, the Southern Railway and the S.N.C.F. now have decided to extend the arrangement to include all the men in the link, with bi-lingual technical officers in attendance. In Paris, the English crews are met by representatives of the French and British railways and taken on a visit of inspection to La Chapelle locomotive depot, followed by a drive round the city. On this side, the Frenchmen are entertained at the Craven Hotel of the Southern Railway, and are taken to Nine Elms locomotive depot, and on a sightseeing tour of London. In all, nine exchanges will take place, five before Easter, and the remainder afterwards.

Paris Visited by "Golden Arrow" Train Crew

Crews of the "Golden Arrow" and "Fleche d'Or" met in Paris on February 24, and afterwards the "Golden Arrow" crew visited La Chapelle locomotive depot, and toured Paris

The "Golden Arrow" crew greet the driver and fireman of the "Fleche d'Or" (see paragraph above)

Staff and Labour Matters

Manning of Precision Burring Machine, Horwich, L.M.S.R.

A dispute concerning the manning of a Hancock precision burring machine in the boiler shop at the Horwich works, L.M.S.R., which threw out of work a considerable number of workmen when the boilermakers withdrew their labour, was referred to the National Arbitration Tribunal after the Railway Shopmen's National Council had failed to reach agreement on the matter.

The Tribunal, which sat to hear the case in London on February 21, stated that it was of opinion that the substantial question involved in the dispute was whether the company had acted correctly in accordance with the terms of an agreement reached at a meeting on October 19, 1938, between representatives of the company and of the employees' side of the Railway Shopmen's National Council. The Tribunal found that the company had acted in accordance with the terms of that agreement and awarded accordingly.

Road Haulage: Hours and Conditions

As from the first pay day on or after Monday, March 3, the hours of duty for road haulage workers are reduced to 44 a week with rates of pay remaining unchanged. The working week will be regulated on a 5-day or a 5½-day basis. Where the 5-day week is adopted the hours will be 9 hours on four days and 8 hours on one day. The normal hours of the 5½-day week will be 8 hours a day, Monday to Friday, and 4 hours on Saturday.

In a week in which a customary holiday occurs, a regular worker will be paid as if he had worked his normal hours of duty. If called on to work on a customary holiday, a regular or a casual worker will be paid for twice the number of hours worked.

Overtime is payable to a regular worker at time-and-a-quarter for the first 8 hours in a week and time-and-a-half thereafter for: (1) hours worked on any day in excess of the normal hours; (2) hours worked after 2 p.m. on Saturday in the case of a 5½-day worker; (3) all hours worked on Saturday in the case of a 5-day worker.

Sunday work is payable at double time for hours worked with a minimum as for 5½ hours at double time.

For work performed between 10 p.m. and 4 a.m. an additional 4d. per hour or part thereof is payable.

Annual holidays will consist of one week plus three full working days where the usual qualification is satisfied.

Municipal Passenger Transport Workers

The National Joint Industrial Council for the Road Passenger Transport Industry which covers the municipal passenger transport workers has agreed to shorter working hours, extra pay for Sunday duty and improved holidays to come into force in the first full pay period in April. The agreement provides for a 44-hour week instead of the present 48; payment at the rate of time-and-a-half instead of time-and-a-quarter for Sunday duty; and payment for six public holidays in addition to annual holidays.

Railway Wages and Conditions

As briefly recorded in *The Railway Gazette* of March 21, a meeting was held in London on March 17 between representatives of the railway companies and the N.U.R., A.S.L.E.F., and Railway Clerks' Association in connection with new demands by the unions. The N.U.R. and R.C.A. claim an all-round increase of £1 per week, and the A.S.L.E.F. claims new wages scales for engine cleaners, firemen and drivers, giving increases of amounts ranging from 8s. to 29s. 6d. a week.

On hours of duty, the N.U.R. claims a reduction to 40 hours for conciliation grades and 35 hours for the salaried staff, and the R.C.A. also claims a reduction to 35 hours a week for the salaried staff; the A.S.L.E.F. claims a reduction to 44 hours a week for engine cleaners, firemen, and drivers.

All unions claim that payment for Sunday duty should be increased to double time, and the N.U.R. and A.S.L.E.F. in addition claim that time worked between 4 p.m. and 12 midnight on Saturday should be paid for at double time.

The Railway Shopmen's National Council also met on March 17, when the trade unions submitted a claim for an increase of £1 a week.

SENTINEL TRAINS FOR EGYPT.—The Egyptian State Railways have placed an order with Sentinel (Shrewsbury) Limited, for ten three-car train sets. The trains will be equipped with Sentinel six-cylinder steam engines.

Central Line Extension to Ruislip

The extension of the Central Line of London Transport from North Acton to Greenford and Ruislip entails the completion by the G.W.R. of 8¼ miles of electrified double track, together with considerable earthworks, ballasting and drainage; the fixing of cable parts, laying the permanent way; and the completion of 13 bridges.

Seven new stations are to be constructed. They will be of the island platform type, of modern design and layout, with a new style of double curved reinforced concrete roof of distinctive appearance. The new stations will be situated at Hanger Lane, Perivale, Greenford, Northolt, South Ruislip & Northolt Junction (to be renamed South Ruislip), Ruislip Gardens, and Ruislip & Ickenham (to be renamed West Ruislip); and all will be built on the south side of the Paddington to Birmingham main line. Some stations will have a car park and a pull-in space for buses.

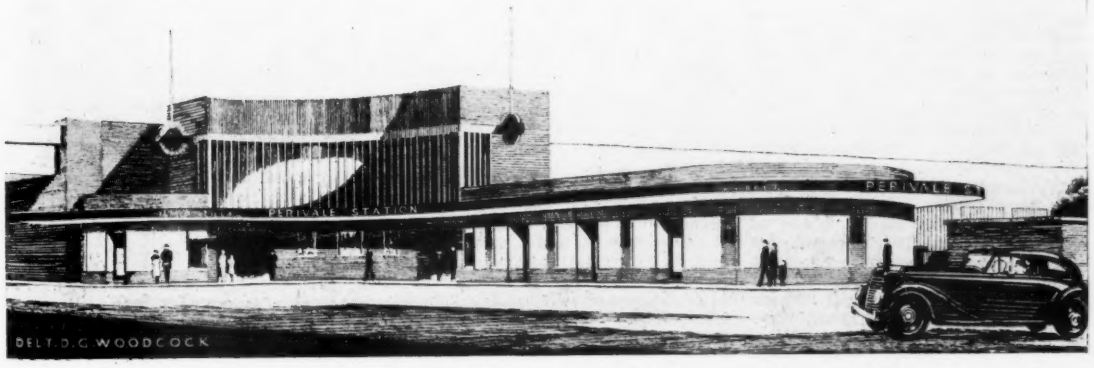
Interchange with London Transport trains will be provided at Greenford (for G.W.R. stations to Ealing and Paddington); and at South Ruislip (for L.N.E.R. and stations to Marylebone). At Greenford, escalators will connect the electric line platforms with the booking hall and subways to the steam train platforms. The booking hall will be at ground level.

At Greenford, South Ruislip, Ruislip Gardens, and West Ruislip the new stations will be adjacent to the existing steam stations. Subways or overbridges will connect steam and electric train platforms. Hanger Lane, Perivale, and Northolt stations ultimately will be served by London Transport electric services only, as with the completion of the new line, the existing halts at Brentham, Perivale, and Northolt will be closed, and steam services withdrawn. The local steam service from Ealing Broadway will terminate at a bay platform in the station at Greenford.

Power supply will be provided by new electric substations at Brentham, Greenford, Northolt, and Ruislip, and by extensions to the existing G.W.R. substation at Old Oak Common. The big rolling stock depot at Ruislip, requisitioned as a factory by the Admiralty during the war, is being reconverted to its original form.

With the completion of the scheme, Central London trains will run direct from East London, the City, and West End to Greenford and Ruislip.

Station Design on a London Transport Extension



Design for a new station at Perivale on the Central Line extension to Ruislip

Notes and News

South African Railway Earnings.—Railway earnings in South Africa for the period December 29, 1946, to February 1, amounted to £5,954,615, compared with £5,172,207 in the previous corresponding period.

Agreed Charges.—Applications for the approval of 56 further agreed charges under the provisions of section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Railway Rates Tribunal. Notices of objection must be filed on or before April 8 next.

Strike of Southern Railway Motormen.—A one-day strike of motormen on the Eastern Section of the Southern Railway occurred on March 22, as a protest against the suspension from duty of one of their number for alleged misconduct. The strike did not have the support of the men's union.

District Locomotive Superintendent Required.—A district locomotive superintendent, age 25 to 35 years, is required by the Sudan Railways for service in the Sudan. Candidates must be fully qualified locomotive engineers, both in theory and practice, should have graduated in mechanical engineering and/or should be chartered engineers. See Official Notices on page 319.

L.M.S.R. Advertising & Publicity Department.—The Advertising & Publicity Department of the L.M.S.R. has vacated its offices in Euston Station and has re-opened at Room 400, Euston House, Eversholt Street, London, N.W.1. The telephone number is Euston 1234. The hours of business are: Mondays—Fridays, 9 a.m. to 5 p.m.; Saturdays, 9 a.m. to 12 noon.

Civil Engineering Assistant Required.—A senior civil engineering assistant is required by the Crown Agents for the Colonies for the engineering designs department at their London office. Candidates, over 30 years of age, must be first class draughtsmen and have had considerable experience in a civil engineer's—preferably railway company's—drawing office. See Official Notices on page 319.

Locomotive Draughtsman Required.—A locomotive draughtsman, age 26-30 years, preferably unmarried, is required by the Sudan Railways for service in the Sudan. Applicants should have good workshop and drawing office training and experience in steam locomotive design. Any knowledge of diesel traction and carriage and wagon practice would be an advantage. See Official Notices on page 319.

Great Western and Southern Railways Channel Islands Services.—The Great Western and Southern Railways announce that, starting at Whitsun, sailing tickets will be re-introduced for week-end Channel Islands sailings. The latter will operate a daily service to and from Southampton starting on May 23. On June 16 the G.W.R. present tri-weekly service to and from Weymouth will be replaced by a daily daylight service in each direction. Postal applications for sailing tickets or other facilities should be addressed, for outward journeys: from Southampton, to Continental Inquiry Office, Victoria Station, S.W.1, or to Divisional Marine Manager, Southampton; and, from Weymouth, to Quay Superintendent, Weymouth. For inward journeys postal application should be made to the joint S.R. and G.W.R. agents at Jersey or Guernsey. The G.W.R. Central Inquiry Bureau, 14, Bishop's Bridge Road, London, W.2, will deal only with personal applications for sailing tickets by intending passengers living in the London area. Personal applications for tickets *via* Southampton should be made to the Continental Inquiry Office, Victoria Station, or Divisional Marine Manager, Southampton.

R.H. & D.R. 21st Anniversary.—The twenty-first anniversary of the Romney, Hythe & Dymchurch Railway was celebrated by a party on March 21, at which the two film comedians, Mr. Stan Laurel and Mr. Oliver Hardy reopened to the public the final section of the line. The inaugural train from New Romney to Dungeness included a buffet observation-car, the first of its type to run on this railway.

Carriage and Wagon Engineering Assistants Required.—Senior carriage and wagon engineering assistants are required by the Crown Agents for the Colonies for their engineering designs department at their London office. Candidates should have passed the Associate Membership examination of the Institution of Mechanical Engineers or hold equivalent exempting degree, and have served an apprenticeship or pupilage in a carriage and wagon department of a British railway company or firm of carriage and wagon manufacturers. See Official Notices on page 319.

More Trains Cancelled in Eire.—In consequence of the fuel position, the Great Northern Railway (Ireland) restricted the operation of passenger and goods train services within Eire as from March 11. Some 17 daily passenger trains were withdrawn, including the cancellation of services on three branch lines. Goods trains ran on two days a week only, but alternative road services were provided as far as possible. These restrictions affected traffic within Eire, and between Eire and Northern Ireland; but traffic between stations in Northern Ireland was not restricted.

Hackbridge & Hewittic Electric Co. Ltd.—A scheme of amalgamation has been effected between the Hackbridge Electric Construction Co. Ltd., Hewittic Electric Co. Ltd., and New Switchgear Construction Co. Ltd. With a capital of £750,000, the amalgamated company has taken over the assets, liabilities and functions of the three companies, and will operate under the title of Hackbridge & Hewittic Electric Co. Ltd. It is stated that the directors of the three companies are continuing with the amalgamated company, and that all business will continue to be carried out in the same factories as hitherto and under the same management.

G.W.R. Operatic Society.—On Friday last, the Great Western Railway (London) Operatic Society revived the practice of holding a guest night to which many traders and business associates of the railway were entertained to a presentation of "The Rebel Maid" at the Scala Theatre. It was the second occasion on which this romantic light opera had been performed by the Society; the previous occasion was in 1929. The production was excellently staged and admirably sung and performed; the two leading parts were portrayed by Miss Joyce Hewitt as the Rebel Maid, and by Mr. George Clarke as Derek Lanscombe. They were finely supported by the remainder of the cast and by a large and well-trained chorus. Not the least contribution to an enjoyable evening was provided by the orchestra under the direction of Mr. Stanley Cheffins.

Midland Railway of Western Australia.—In our summary last week of the report of the Midland Railway Co. of Western Australia Ltd., reference was made to the effect on the company's results in the current year of the strike of enginemen on the Western Australian Government Railways. It should have been made clear that the cessation of traffic referred only to interchange traffic with the Western

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices Mar. 25, 1947	Prices Rise Fall
G.W.R.				
Cons. Ord.	61½	54½	54½	– 1
5% Con. Pref. ...	126½	107	119½	– 1
5% Red. Pref. (1950)	106½	102½	10 ½	– 1
5% Rt. Charge ...	140½	122½	134½	—
5% Cons. Guar. ...	137½	118½	131½	—
4% Deb.	129½	106	123½	– 1
4½% Deb.	129½	107	123½	– 1
4½% Deb.	130½	114	125½	+ 1
5% Deb.	142½	125	137½	—
2½% Deb.	95½	81½	92½	—
L.M.S.R.				
Ord.	30½	26½	27	– ½
4% Pref. (1923) ...	64	52½	58½	—
4% Pref.	86	75½	80½	– 1
5% Red. Pref. (1955)	105½	97	101½	—
4% Guar.	108½	100	102½	– 1
4% Deb.	120	103	113½	– 1
5% Red. Deb. (1952)	108½	105½	105½	—
L.N.E.R.				
5% Pref. Ord. ...	7	5	6⅜	—
Def. Ord.	3½	2½	3½	—
4% First Pref. ...	59½	50½	54½	– 1
4% Second Pref. ...	29½	25⅜	26½	– ½
5% Red. Pref. (1955)	104	97	98½	– 1
4% First Guar. ...	107	98	101½	– 1
4% Second Guar. ...	101	90	95½	– 1
3% Deb.	104	87½	98	– ½
4% Deb.	119½	102½	113½	—
5% Red. Deb. (1947)	101	99	99½	—
4½% Sinking Fund Red. Deb.	107½	101½	103½	—
SOUTHERN				
Pref. Ord.	79½	70	73½	– ½
Def. Ord.	24	19½	22⅜	—
5% Pref.	125½	107	118½	– 1
5% Red. Pref. (1964)	115½	106½	111½	—
5% Guar. Pref. ...	137½	119	131½	—
5% Red. Guar. Pref. (1957)	115½	107½	111½	—
4% Deb.	129½	105½	123½	– 1
5% Deb.	159½	125½	134½	—
4% Red. Deb. (1962-67)	113½	104½	110½	—
4% Red. Deb. (1970-80)	115½	104½	111½	—
FORTH BRIDGE				
4% Deb.	109	103	103½	– 1
4% Guar.	105	102	99½	– 1½
L.P.T.B.				
4½ "A"	133½	120½	127½	—
5% "A"	142½	130½	136½	—
3% Guar. (1967-72) ...	108	98½	105½	—
5% "B"	128½	117½	123½	—
"C"	64½	56½	62½	– 1
MERSEY				
Ord.	34	30	33½	—
3% Perp. Pref. ...	76	69	72½	—
4% Perp. Deb. ...	117½	103	111	—
3% Perp. Deb. ...	98	81	92½	—
IRELAND*				
BELFAST & C.D.				
Ord.	8½	6	7½	—
G. NORTHERN				
Ord.	41⅞	31½	31½	– ½
Pref.	63⅜	52	52	—
Guar.	97½	78½	94	—
Deb.	107	97½	104½	—
IRISH TRANSPORT				
Common	19/2½	16/9	14/9	– 4½
3% Deb.	107	100	104	– ½

* Latest available quotation

OFFICIAL NOTICES

Crown Agents for the Colonies

ENGINEERING ASSISTANTS—CARRIAGE AND WAGON (SENIOR) required by the Crown Agents for the Colonies for their Engineering Designs Department at their London office. Salary scale £400—£18—£525 per annum. Commencing salary fixed according to qualifications, experience, and age. Appropriate consolidation addition at Civil Service rates also payable amounting to £90 per annum. The posts are not pensionable, but there is an Office Gratuities Scheme.

Qualifications—Candidates should have passed the Associate Membership examination of the Institution of Mechanical Engineers or hold equivalent exempting degree. They must have served an apprenticeship or pupilage in a Carriage and Wagon department of a British Railway Company or firm of Carriage and Wagon manufacturers with subsequent drawing office experience.

Duties—Preparation of tenders and specifications, examining and approving drawings, calculations, technical correspondence. A sound knowledge of modern manufacturing methods, including fusion welding, is desirable.

Write stating age and full particulars of qualifications and experience to Box 462, c/o WHITE'S LIMITED, 72, Fleet Street, London, E.C.4, quoting 0/154. Applications must *not* be made to the Crown Agents direct.

Crown Agents for the Colonies

ENGINEERING ASSISTANT—CIVIL (SENIOR) required by the Crown Agents for the Colonies for the Engineering Designs Department *at their London office*. The appointment carries a scale of salary of £400—£18—£525 per annum, commencing salary fixed according to qualifications, experience, and age. Appropriate consolidation additions at Civil Service rates also payable amounting to £90 per annum. The post is not pensionable, but there is an Office Gratuities Scheme.

Qualifications—Candidates, who must be over 30 years of age, must be first class draughtsmen and have had considerable experience in a Civil Engineer's, preferably Railway Company's drawing office. They must be capable of preparing design of station layouts, including switches, crossings, and permanent way details generally. Experience of flat-bottom railway track, although desirable, is not essential. Some knowledge of Mechanical Signalling would be an advantage. They should have passed the Associate Membership examination of the Institute of Civil Engineers or hold equivalent exempting degree.

Duties—Calculation, design and specification of permanent way of all descriptions, preparation of station layouts, etc. Write stating age and full particulars of qualifications and experience to Box 333, c/o WHITE'S LIMITED, 72, Fleet Street, London, E.C.4, quoting 0/154. Applications must *not* be made to the Crown Agents direct.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following Posts:—

DRAUGHTSMEN (as under):

Required by the Nigerian Government Railway Civil Engineering Department for a tour of 18 to 24 months, with prospect of permanency. Salary according to experience, age and war service in the scale £400, rising to £720 a year, plus local allowance, which on salary of £400 amounts to £60 a year, and for married men a separation allowance of between £84 and £204 a year according to number of dependants. Outfit allowance £60. Free passages and quarters.

DRAUGHTSMAN (Civil Engineering):

Candidates must have had a good general and technical education and have had at least five years' experience in the drawing office, preferably of a Civil Engineering Railway Department or a firm of Consulting Engineers or Contractors, with practice in railway work. A knowledge of the design and construction details of civil engineering structures and railway trackwork will be required, including the ability to take off quantities, prepare estimates, and draft general specifications.

DRAUGHTSMAN (Architectural):

Candidates must have had a thorough training and should preferably be registered as an architect. They should be experienced in the preparation of sketch plans, working drawings and details, and in the preparation of bills of quantities and specifications, for general industrial work and housing. A sound knowledge of building construction, sanitation and simple reinforced concrete work, together with ability to direct and instruct junior assistants is necessary.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417 on both letter and envelope.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiment. Eight single-acting cylinders with rotary valves. An application of the principles of the Willans central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. *Price 2s. Post free 2s. 3d.*

THE RAILWAY SYSTEM OF JAMAICA. A general description of the system and its traffics, with an account of economic problems; the motive power used; and some features of operation. By H. R. Fox, B.Sc., M.Inst.C.E., General Manager, Jamaica Government Railway. Reprinted from *The Railway Gazette*, January 5 and 12, 1945. *Price 1s. Post free 1s. 2d.*

Sudan Government

SUDAN RAILWAYS require a Locomotive Draughtsman for service in the Sudan. Applicants should have good workshop and drawing office training and experience in steam locomotive design. Any knowledge of diesel traction and carriage and wagon practice would be an advantage. Age 26-30 preferably unmarried. Provident Fund Contract starting at £E.350 or more, according to age, qualifications and experience, with periodic increases to £E.920 and prospect of eventual promotion to higher scale. Cost-of-living allowance now 35 per cent. of salary up to a maximum of £E.180. Outfit allowance £E.40. (£E.1 = £1 0s. 6d.) There is at present no income tax in the Sudan. Accommodation available at controlled rent. Liberal leave with passage allowance. Strict medical examination. Free passage on appointment. Further information and application form from Sudan Agent in London, Wellington House, Buckingham Gate, S.W.1. Envelopes should be marked "Loco. Draughtsman."

Sudan Government

SUDAN RAILWAYS require a District Locomotive Superintendent for service in the Sudan. Duties include administration of running sheds, maintenance of locomotives and rolling stock, and general mechanical engineering. Candidates must be fully qualified locomotive engineers, both in theory and practice, should have graduated in mechanical engineering and/or should be chartered engineers. They should also have served a full pupilage or apprenticeship on a railway or with locomotive builders and should have occupied a position of responsibility for not less than one year. Age limits 25-35.

Appointment on two years' probation with a view to permanent pensionable service or to Provident Fund Contract, with a minimum security for seven years, after probation. The salary scale under pension conditions is: £E.480-540-600-660-720-780-852-936, increments being biennial, except the last, which is after three years at £E.852. On Provident Fund Terms salaries are about 17½ per cent. higher. (£E.1 = £1 0s. 6d.) Starting rates are according to age, qualifications and experience.

Outfit allowance of £E.60 is payable, provided salary does not exceed £E.600 on Probationary Contract and £E.700 on Provident Fund Contract.

Cost-of-living allowance at the rate of 35 per cent. of pay, subject to a maximum of £E.15 payable on all salaries up to £E.1,200 per annum.

At present there is no income tax in the Sudan. Strict medical examination. Free passage on appointment.

Application forms are obtainable from the Sudan Agent in London Wellington House, Buckingham Gate, S.W.1, marking envelopes "District Locomotive Superintendent."

Australian Government Railways, and not to operations within the company's system.

Hunslet Engine Co. Ltd. Contract.—The Hunslet Engine Co. Ltd. has delivered two boilers with 1,074 sq. ft. of heating surface and working at 175 lb. pressure to the Manchester Collieries, for the reboilering of two ex-North Staffordshire Railway 0-6-2T locomotives.

Loudspeakers for Romford Station, L.N.E.R.—The L.N.E.R. has placed an order for a portable public address system for use at Romford Station, so as to facilitate the working of traffic. It is hoped that the manufacturer will be able to give delivery in a few weeks.

Isle of Man Railway Company.—Receipts in the year ended December 31, 1946, totalled £98,440, compared with £90,265 in 1945. Expenditure in the two years was £80,159 and £69,347 respectively, leaving net revenue £2,637 lower at £18,281. The directors recommend dividends of 5 per cent. on the preference shares and 2½ per cent. on the ordinary shares, leaving a balance of £2,226 to be carried forward. The company operates 46 m. 20 ch. of railway, and the total train-mileage in 1946 was 248,291 miles.

New Southern Railway Motor Vessels.—The new Southern Railway vessels, the *Winchester* and the *Farringford*, were launched at Dumbarton on March 21. The *Winchester*, launched by Mrs. R. M. T. Richards, wife of the Traffic Manager of the Southern Railway, is a twin-screw diesel-driven cargo vessel, designed primarily for the Southampton—Channel Island route, but suitable also for any Southern Railway Cross-Channel route. The vessel has a speed of 15 knots, and is a part replacement of tonnage lost by enemy action. The *Farringford*, launched by Mrs. R. P. Biddle, wife of the Docks & Marine Manager, is a diesel-electric passenger and car ferry for the Lymington—Yarmouth service, designed to carry 30 passengers and 32 cars, which is double the number carried by any other vessel on this service.

Railway Students' Association Convention.—Arrangements are being made for the holding of the first post-war convention of the Railway Students' Association, at the L.N.E.R. staff training colleges at Darlington, from May 17 to 21.

Cost-of-Living Index.—At February 1 last, the official cost-of-living index figure was 103 points above the level of July, 1914, compared with 104 points at January 1 last. At February 1, 1939, the cost-of-living index was 55 points above July, 1914.

State Operation of Nitrate Railways.—A strike broke out recently among workers on the Nitrate Railways who had not been paid a bonus due on December 31, 1946. On March 7 last, the President of Chile signed a Decree instructing the Chilean State Railways to take over temporary operation of the Nitrate Railways, and in ordering the company to pay the bonus, authorised a 15 per cent. increase in its tariffs. The Nitrate Railways had insisted on a 40 per cent. increase. The system was to have been taken over by the Chilean State Railways by a Decree of July last year (see our August 2, 1946, issue), but as recorded in our August 16 issue, this Decree subsequently was suspended. The men returned to work on March 14, whereupon the President withdrew his Decree requisitioning the railway.

Recent L.M.S.R. Contracts. — The L.M.S.R. announces that contracts have been placed with the following firms:—

Fletcher & Co. (Contractors) Ltd., Mansfield: construction of tank foundations, paving, and drainage at Bletchley, Northampton, and Wellingborough motive-power depots in connection with fuelling facilities for oil-burning locomotives.

L. Fairclough Limited, Adlington, Lancs.: construction of tank foundations, paving, and drainage at Crewe, Shrewsbury, and Durran Hill (Carlisle), in connection with fuelling facilities for oil-burning locomotives.

Wm. Nicholson & Son (Leeds) Ltd.: construction of tank foundations, paving, and drainage at Wakefield, Stourton, and Normanton, in connection with fuelling facilities for oil-burning locomotives.

Caffin & Co. Ltd., 25, Craven Street, London, W.C.2: construction of a new repair shop at Hellifield, Yorks.

Fletcher Russell & Co. Ltd., Warrington: supply and installation of equipment for water heating, electric heating, and mechanical ventilation for a new canteen at Lime Street, Liverpool.

Limmer & Trinidad Lake Asphalt Co. Ltd., Steel House, Tothill Street, London, S.W.1: asphalt finishing of a workshop floor at Derby.

J. Dickson & Co. (Bolton) Ltd.: renewal of engine-shed roof and repairs to outside repair pit and engine pit walls at Belle Vue, Manchester.

Railway Stock Market

Weakness developed in stock markets earlier in the week after a further general fall in British Funds, the industrial and other sections all moving in unison. Selling of gilt-edged was persistent, and probably arose from the continued doubts expressed in some quarters as to the Government's ability to sustain its cheaper money policy. Dealers widened quotations as a precautionary measure, and this checked selling, while later the sharp falls tended to attract buyers on the assumption that the Budget will provide Mr. Dalton with an opportunity for reaffirming his confidence in cheap money. In that case prices might recover sharply (Treasury 2½ per cents have been down to 93⅜ this week compared with par earlier in the year).

It is true that there is a growing belief that modification of monetary policy seems inevitable as time proceeds; but it is not improbable that the Government will be able to sustain cheap money for some while yet. To a large extent its nationalisation policy, particularly the basis of "compensation" and the financing of big development and expansion schemes, depends on the maintenance of cheap money. Consequently it would seem that the Government will make every effort to fortify the latter, and this should not be impossible unless a crisis culminating in an early general election is in prospect.

All sections of markets have been overshadowed by the gilt-edged fall. Industrials recorded a moderate but widespread decline, although this was due partly to doubts regarding the outlook for coal and steel supplies, which have increased the view that during the next six months or so the dividend policy of a wide range of companies is likely to be on more cautious lines. Stewarts and Lloyds, and other iron and steel shares, eased after recent gains, but Hadfields responded to the profit and dividend increase. Dunlop Rubber, Imperial Chemical, and most of the industrial leaders lost ground.

Home rails have been unable to move against the general market trend, and were lower in the absence of demand. It was overlooked apparently in some cases that current prices are as much as five points below "take-over" levels, and that in view of the compensation terms, home railway stocks can be regarded as an attractive hedge against the possibility of any further fall in British Funds. Ordinary stocks, after their recent tendency to improve on the prospect of interim dividends this year at the normal period, turned easier with the surrounding market trend, and have declined on balance.

Compared with a week ago, Great Western has receded from 55½ to 54½, the guaranteed stock from 132 to 131, and the 4 per cent. debentures from 124 to 123½. L.M.S.R. was 27, compared with 27¼ a week ago; the first preference, at 79½, compared with 81; and the 1923 preference, at 58, compared with 59. L.N.E.R. first preference has receded from 55 to 54, and the second preference from 27 to 26½. Southern deferred receded from 22¼ to 22, and the preferred from 73½ to 73.

London Transport "C" was a point down at 62, but in other directions, Metropolitan Assented, which recently received more attention on wider recognition of its compensation position, has held its improvement at 54½. Sooner or later, it would seem that the wide margin between current prices and "take-over" levels for home railway stocks is likely to attract increased attention; but this is improbable while general market conditions are unsettled.

Reactionary market conditions have had the effect of curbing speculation in South American railway stocks. Leopoldina came back to 19, compared with 23½ a week ago; the preference has fallen from 66 to 58½, and the 4 per cent. debentures from 81 to 76. There continue to be anticipations that the San Paulo Railway deal will be followed by the purchase of other railways by the Brazilian Government in view of its sterling balances.

Elsewhere, Antofagasta ordinary has come back from 16 to 13, and the 5 per cent. preference from 69 to 62. San Paulo was 165, compared with 173 a week ago. United of Havana 1906 debentures remained active on talk of a revised capital scheme, but at 24 lost part of their recent sharp advance. Argentine railway stocks were considerably quieter, and recorded moderate declines on balance, due mainly to falling off in demand. Not a great deal of selling appeared to be taking place. Buenos Ayres Great Southern was 17, compared with 17¼ a week ago, while the 4 per cent. debentures remained at 93; but the 5 per cent. preference came back from 67 to 66½, and the 6 per cent. preference from 49½ to 46½.

ROBERT STEPHENSON & HAWTHORNS LIMITED.—The company's net profit, after taxation, for 1946 was £27,753, an increase of £12,311. The directors recommend a dividend of 5 per cent. less tax, as in the previous year, together with a tax-free bonus of 2½ per cent.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1945 6	No. of Week	Aggregate traffics to date: Totals 1946 7	Aggregate traffics to date: Totals 1945 6	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1945	Prices: Lowest 1945	Prices: Mar. 25, 1947
				£	£		£	£	£				
South & Central America	Antofagasta	834	16.3.47	40,440	+ 4,190	11	396,720	361,980	+ 34,740	Ord. Stk.	12	8¾	13
	Arg. N.E.	753	15.3.47	ps.336,300	+ps.22,400	37	ps.11,783,000	ps.10,976,900	+ ps.806,100	,,	10	5½	15½
	Bolivar	174	Feb., 1947	$113,608	+ $3,013	9	$228,677	$232,451	— $3,774	6 p.c. Deb.	8½	5½	7½
	Brazil	—	—	—	—	—	—	—	—	Bonds	25	17	35½
	B.A. Pacific	2,771	15.3.47	ps.2,950,000	+ps.368,000	37	ps.86,202,000	ps.83,590,000	+ps.2,612,000	Ord. Stk.	7	5	9
	B.A.G.S.	5,080	15.3.47	ps.3,965,000	—ps.816,000	37	ps.133,265,000	ps.129,664,000	+ ps.3,601.000	Ord. Stk.	13¾	10½	17
	B.A. Western	1,924	15.3.47	ps.1,460,000	+ps.176,000	37	ps.48,086,000	ps.44,622,000	+ ps.3,464,000	,,	12¾	9½	25½
	Cent. Argentine	3,700	15.3.47	ps.3,378,480	— ps.67,787	37	ps.119,277,375	ps.116,240,717	+ ps.3,036,658	,,	9¾	7	19½
	Do.	—	—	—	—	—	—	—	—	Dfd.	5	2¾	17½
	Cent. Uruguay	970	15.3.47	38,774	— 4,433	37	1,369,863	1,430,401	— 60,538	Ord. Stk.	7½	4	23½
	Costa Rica	262	Jan., 1947	30,317	+ 4,789	31	190,342	195,192	— 4,850	Stk.	16½	13	13
	Dorada	70	Feb., 1947	29,600	+ 1,535	8	60,300	59,814	+ 486	1 Mt. Deb.	103	102	106½
	Entre Rios	808	15.3.47	ps.411,700	—ps.59,500	37	ps.15,995,200	ps.15,764,200	+ ps.231,000	Ord. Stk.	7½	4½	7½
	G.W. of Brazil	1,030	15.3.47	38,900	+ 7,900	11	420,900	351,000	+ 69,900	Ord. Stk.	30/-	23/6	92/6
	Inter. Ctl. Amer.	794	Jan., 1947	$1,181,408	+ $156,861	4	$1,181,408	$1,024,547	+ $156,861	—	—	—	—
	La Guaira	22¾	Feb., 1947	$99,791	— $10,779	8	$225,067	$236,062	— $10,995	5 p.c. Deb.	78	70	65
	Leopoldina	1,918	15.3.47	61,970	+ 4,434	11	695,215	606,826	+ 88,389	Ord. Stk.	4½	3½	17½
	Mexican	483	31.5.46	ps.1,464,000	+ps.459,100	22	ps.7,706,200	ps.13,441,600	+ps.5,220,200	Ord. Stk.	½	¼	1
	Midland Uruguay	319	Feb., 1947	7,529	— 6,268	34	132,490	148,286	— 15,796	—	—	—	—
	Nitrate	382	15.3.47	6,588	— 3,954	10	38,538	47,699	— 9,161	Ord. Sh.	75/6	67/6	81/3
	N.W. of Uruguay	113	Feb., 1947	3,067	— 811	35	42,607	44,696	— 2,089	—	—	—	—
	Paraguay Cent.	274	14.3.47	£59,383	+ £3,187	37	£2,359,754	£2,237,610	+ £122,144	Pr.Li.Stk.	79⅞	77	60½
	Peru Corp.	1,059	Feb., 1947	133,073	— 5,322	35	1,201,535	1,134,456	+ 67,079	Pref.	10⅜	7⅛	11½
	Salvador	100	Jan., 1947	c265,000	+ c31,000	31	c885,000	c847,000	+ c38,000	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	60¾	50½	164½
	Taltal	156	Feb., 1947	2,870	— 2,445	35	34,705	24,490	+ 10,215	Ord. Sh.	17/-	10/6	24/-
	United of Havana	1,301	15.3.47	99,198	+ 536	37	2,110,621	1,967,526	+ 143,095	Ord. Stk.	3	1	4
	Uruguay Northern	73	Feb., 1947	837	— 764	34	9,953	14,214	— 4,261	—	—	—	—
Canada	Canadian National	23,482	Jan., 1947	8,214,500	+ 489,250	4	8,214,500	7,725,250	+ 489,250	—	—	—	—
	Canadian Pacific	17,037	21.3.47	1,517,500	+ 37,250	11	15,511,000	15,813,000	— 302,000	Ord. Stk.	24	14⅜	17⅛
Various	Barsi Light†	202	Jan., 1947	21,292	— 1,492	43	225,870	225,120	+ 750	Ord. Stk.	131	123	108
	Beira	204	Sept., 1946	90,838	+ 17,136	52	950,694	920,575	+ 30,119	—	—	—	—
	Egyptian Delta	607	31.1.47	20,719	+ 1,613	44	568,859	533,212	+ 35,547	Prf. Sh.	10	8½	6½
	Manila	—	—	—	—	—	—	—	—	B. Deb.	71	55½	73½
	Mid. of W. Australia	277	Jan., 1947	16,229	— 1,557	30	115,351	118,260	— 2,909	Inc. Deb.	97¼	85	65
	Nigeria	1,900	Jan., 1947	370,570	+ 6,486	42	3,827,805	2,794,107	+ 1,033,698	—	—	—	—
	Rhodesia	2,445	Sept., 1946	541,147	+ 24,052	52	6,174,663	6,069,663	+ 105,000	—	—	—	—
	South African	13,323	8.2.47	1,231,248	+ 146,295	45	52,012,467	45,721,196	+ 6,291,271	—	—	—	—
	Victoria	4,774	Nov., 1946	1,204,525	— 39,782	—	—	—	—	—	—	—	—

x Receipts are calculated @ 1s. 6d. to the rupee